

BRANCH MEETINGS AND MEMBERS' FORUM

CONTENTS

INTRODUCTION

NORTHERN BRANCH

Leicester, 9th March, 1951

THE SUPPLY OF FOREIGN BOOKS AND PERIODICALS TO THE LIBRARIES OF THE UNITED KINGDOM (*Summary*).

MARJORIE PLANT, D.SC., F.L.A. (London School of Economics and Political Science)

Birmingham, 14th June, 1951

SOME CLASSIFICATION AND INDEXING PROBLEMS IN AN INDUSTRIAL INFORMATION BUREAU.

E. B. UVAROV, B.SC., A.R.C.S., D.I.C., A.R.I.C. (Head of Technical Information Bureau, Courtaulds, Ltd.)

THE FUNCTIONS OF A USE-DEVELOPMENT DEPARTMENT IN THE TEXTILE INDUSTRY.

C. P. TATTERSFIELD (Use-Development Department, Courtaulds, Ltd.)

SCOTTISH BRANCH

Edinburgh Conference, 25th May, 1951

OPENING ADDRESS.

MISS MARGARET HERBISON, M.P. (Joint Under-Secretary of State for Scotland)

AN INTELLIGENCE OFFICER IN INDUSTRY (*Summary*).

V. E. PARKE, M.A., D.SC. (Imperial Chemical Industries, Ltd., Billingham Division)

MIDLANDS BRANCH

Birmingham, 20th September, 1951

WHAT IS AN INFORMATION OFFICER?

E. N. SIMONS (Publicity Manager, Edgar Allen & Co., Ltd.)

MEMBERS' FORUM

OPERATIONAL RESEARCH ON THE AUTHOR CATALOGUE

J. B. REED, B.SC., F.R.I.C. (Technical Administrative Officer, British Coal Utilisation Research Association)

SETTING UP A TRANSLATIONS INDEX

JOHN G. F. BELLAMY (Index of Unpublished Translations, Aslib)

REPORTS FROM KINDRED ORGANIZATIONS

MICROFILMS FOR THE DISABLED

SIR JOHN FORSDYKE, K.C.B. (Microfilms for the Disabled Association, Ltd.)

THE NATIONAL CENTRAL LIBRARY.

J. W. THIRSK, F.L.A. (National Central Library)

INTERNATIONAL FEDERATION FOR DOCUMENTATION.

G. A. LLOYD (British Standards Institution)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION.

G. A. LLOYD (British Standards Institution)

BRITISH UNION CATALOGUE OF PERIODICALS.

Report and accounts for the year ending 31st March, 1951

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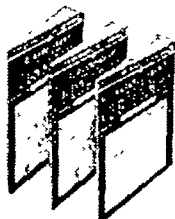
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ASLIB PROCEEDINGS

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February, 1952

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INTRODUCTION

THIS issue of *Aslib Proceedings* contains papers given at Branch meetings in 1951, two items under 'Members' Forum', and a number of reports from other organizations with which Aslib has had close association.

The Scottish Branch held its conference at Edinburgh in May. The opening address, by Miss Margaret Herbison, M.P., Joint Parliamentary Under-Secretary of State for Scotland, and the talk by Dr. V. E. Parke on the work of the industrial intelligence officer, are printed in summary. At the same meeting Dr. D. J. Urquhart spoke on the work of the Department of Scientific and Industrial Research and the function of Aslib was described by the Director, Mr. Leslie Wilson. The day closed with an 'Any Questions?' session, which was reported in the June and July, 1951, issues of *Aslib Information*.

Two meetings of the Northern Branch were held during the period. At Leicester, in March, Dr. Plant spoke on the supply of foreign books and periodicals to the libraries of the United Kingdom. As she was, by invitation, commenting on her already published pamphlet of the same title, her paper is only given in summary. The second paper was by Mr. J. C. H. Hurd, Head of the School of Textiles, Leicester College of Technology and Commerce, on the history of the machine-knitting industry with special reference to historical records. Owing to unforeseen circumstances it has not been possible to include Mr. Hurd's paper in this issue of the *Proceedings*, but it is hoped that it can be printed later.

Another meeting of the Northern Branch was held at Birmingham in June and both papers, by Mr. Uvarov and by Mr. Tattersfield, are printed in full.

At this meeting the formation of a third Branch, the Midlands Branch, was discussed and agreed. A Convening Committee was appointed and the Branch held its inaugural meeting on 20th September, when Dr. Wilfrid Bonser, of Birmingham University Library, was elected Chairman. Mrs. H. M. Russell, T.I. Exports, Ltd., undertook the task of Hon. Secretary, while Mr. B. M. Bland, Birmingham University, was elected Hon. Treasurer. A shortened version of the paper given by Mr. E. N. Simons, Chairman of the Northern Branch, is printed in this issue. The full version of the paper is available from Mrs. Russell.

'Members' Forum', the section inaugurated in the August, 1951, issue of *Aslib Proceedings* to provide a place for papers not necessarily presented at meetings, contains this time two items. The first is a self-contained section of the paper given by Mr. J. B. Reed at the Annual Conference of

Aslib in October, 1951, which, for reasons of space, had to be omitted from the November, 1951, issue. The second is an account of the Index of Unpublished Translations now established at Aslib.

Finally, there are several reports from organizations with which Aslib has links of various kinds. These maintain a tradition which dates back throughout the annual Aslib Conference reports which preceded the present periodical. The activities of these organizations are constantly referred to at Aslib meetings, and it is hoped that members will find these brief reports of their current development both helpful and interesting. We are particularly glad to be able to include the account of the Microfilms for the Disabled Association, by Sir John Forsdyke. Those members who attended the 1951 Aslib Annual Conference, at Ashorne Hill, will remember that the 'Pilgrim' microfilm projector was on exhibition there.

E. M. R. DITMAS,
Editor.

THE SUPPLY OF FOREIGN BOOKS AND PERIODICALS TO THE LIBRARIES OF THE UNITED KINGDOM

BY MARJORIE PLANT, D.Sc.(Econ.), F.L.A.

London School of Economics and Political Science

Leicester, 9th March, 1951

Summary

DR. PLANT'S paper was based on the survey which she made for the University and Research Section of the Library Association, of which the report has already been published by the Library Association.¹ Her main points were as follows:

Detailed statistics provided by about 130 libraries in Great Britain and Northern Ireland showed that whereas in recent years public and county libraries acquired on an average only about 1½ per cent of their annual intake of books from abroad, university and college libraries obtained about 25 per cent and special libraries still more, ranging from 30 per cent in the medical group to 48 per cent in the scientific and technological. In spite of licensing and foreign exchange difficulties, the import of foreign material as a whole had increased since before the war: the number of American books and periodicals imported in 1947, according to the statistics available, was already double that of 1938; but imports from some European countries were still surprisingly low, and those from South America almost negligible. What mattered was that if a library's acquisitions from any country were low it should be as a result of reasoned policy, and not through ignorance of what was being published. From the answers received from over 200 librarians it appeared that approximately half of them were dissatisfied with the amount of foreign material they were getting; some blamed licensing restrictions; others complained of high prices; but the majority complained of lack of guidance as to what to buy, feeling the need of better bibliographical aids. Some suggested that a world directory of publishers would be useful (one librarian wanted the Library Association or Aslib to compile one); others wanted regular exhibitions of foreign books, and several hundreds of foreign publishers said, on being asked, that they would be willing to take part in them. Exhibitions needed special organizing, but it seemed not to be generally known that most, if not all, of the booksellers in the Foreign Bookselling Group of the Booksellers' Association would send any item from their stock on approval to any librarian in Great Britain. Books in little demand, and therefore not kept in stock, were more difficult to trace: the librarian

¹ PLANT, Marjorie. *The supply of foreign books and periodicals to the libraries of the United Kingdom. Report of a survey made under the auspices of the Rockefeller Foundation*. London, the Library Association, 1949.

had to work out his own way of getting to know of them—by paying periodic visits abroad, by making contacts with foreign librarians (and perhaps exchanging lists of accessions), by a system of 'blanket' orders through agents in each main country, or by some other means.

The import licence system and foreign exchange regulations still created difficulties in certain cases, but it seemed that about 80 per cent of our librarians bought all their foreign books from British booksellers. For libraries needing small quantities of foreign monographs, microfilms and other material not obtainable from a bookseller Unesco book coupons had proved a special boon.

MR SIMONS asked the speaker whether she had made any use of the British Consular Services in the various countries, as a means of obtaining abstracts from foreign periodicals, and MR. WILSON asked whether Dr. Plant thought the British Council could help, and whether she had made any application to them. To both questions, DR. PLANT replied no, as abstracts were not covered by the survey; but British and foreign consulates had given generous help in other respects. MR. CAMERON asked how many of the librarians consulted were handicapped in the purchase of foreign material by lack of funds. DR. PLANT replied that eighty-nine gave this as their reason. Another question was why there was a great difference in the cost of certain American periodicals as between America and this country, and examples of such differences were given. Dr. Plant was unable to explain this discrepancy. DR. WITHERS pointed out that American advertisers compelled publishers of American technical journals to charge the full cost price to British subscribers as if no advertisements were published, on the grounds that American advertisers derived no benefit from circulation among the British public. MR. WILSON asked what the volume of demand was for lists of foreign publishers, and Dr. Plant replied that a considerable number of librarians had said they were handicapped by the lack of them. MR. PESHALL asked whether the libraries consulted were public, technical or otherwise. Dr. Plant replied that 700 libraries of all kinds had been consulted, of which 300 replied, and 130 gave details of their foreign purchases. Mr. Wilson suggested that 400 had not replied because purchase of foreign material was beyond their resources. He pointed out that Aslib had taken steps through its panel of translators and its index of translations, covering the whole of the Commonwealth, to remedy this to some extent.

SOME CLASSIFICATION AND INDEXING PROBLEMS IN AN INDUSTRIAL INFORMATION BUREAU

By E. B. UVAROV, A.R.C.S., B.Sc., A.R.I.C., D.I.C.

Technical Information Officer, Courtaulds Ltd.

Birmingham, 14th June, 1951

THIS paper is not intended to be either a full description of all work of the Technical Information Bureau of Courtaulds, Ltd., or to offer ready solutions to problems which have worried librarians and information officers from the keepers of the Assyrian clay tablets to speakers at Aslib Conferences. Its aim is to describe some of our *ad hoc* methods of dealing with certain of these problems and to offer our experience to others who may be facing them.

Before dealing in detail with particular problems, it may be useful to outline some of the principles which have guided the development of the Bureau. The first is that the function of the information officer is to provide information for his organization. Classification and indexing systems are a means to that end; they are not ends in themselves and should never become major preoccupations of the industrial information officer. The danger of becoming obsessed with special systems or techniques is one from which none of us is immune.

All the methods used by the information officer must be strictly subordinated to the sole purpose of providing, as efficiently as possible, the information which his users require. The systems and techniques may be very interesting and fascinating to the information officer, but the fact must be faced that the average user does not share this interest and is more likely to regard them as a source of irritation. They should, therefore, be as unobtrusive as possible; they must serve as a skeleton supporting the body of information, not as a suit of armour enclosing it.

I have said that the duty of the information officer is to provide the information that users require; a difficulty is that it is not always easy to recognize what they do require. In this connection, it has sometimes been suggested that the librarian or information officer knows better than the research worker what the latter really needs. In my opinion, this is both wrong and presumptuous; it may well be that the enquirer does not express his request in terms familiar to the information officer, but it then becomes the responsibility of the latter to interpret it. It is unreasonable for the research worker to be expected to talk the information officer's language (which often degenerates into librarians' jargon) and it is an essential qualification of the information officer that he should be able to talk to his users in their own terms.

The second general principle concerns the relation of the library to the information service. The library is regarded as having two distinct but related functions; firstly, as an open and direct service to its users and, secondly, as one of the tools of the information officer. In other words,

the library is an important integral part of the information service and not *vice versa*.

It is not appropriate here to discuss at any length the basic principles and theories of classification and indexing. I will, therefore, pass on to the more practical aspects of these matters in the work of our Bureau.

The general problem is as follows. We have 'open' material in the form of books, periodicals and other publications in the library; 'confidential' material in the form of internal reports and 'potential' material in the form of outside sources of information. The needs are (a) to draw the attention of the users to the existence of the material, (b) to arrange and present it in a rational and accessible manner, and (c) to find and supply any item of it when needed. The first of these needs is outside the scope of this paper and I shall only refer to it in relation to the other two; these latter involve classification and indexing respectively.

We have two main classification requirements. The first is to arrange the library material in a way which users can understand without difficulty; the second is to present our bulletin of abstracts (*Survey of Literature*) so that our different users can quickly pick out the items which are of value to them.

The obvious suggestion for both these purposes is the use of the Universal Decimal Classification (U.D.C.). There are, of course, many other classifications; well-known ones such as the Colon and the Bliss systems, and others, less well known, which appear in the literature from time to time. Interesting though some of these are, they appear to be more remarkable for their abstruse ingenuity than practical utility. The U.D.C. was the only one which we considered to be possibly suitable for our purposes. The suggestion is a very tempting one, especially if it is assumed that alphabetical indexing can be avoided altogether with the use of such a comprehensive system. I believe that such an assumption is wrong and that the filing of separate items (whether they be books, reports, abstracts, references or anything else) by subject classes is not in itself sufficient and can be very dangerous in practice. The danger lies in the belief that a given class or file will necessarily contain all the information on a particular subject. Experience very quickly shows that this is not so, owing to the overlapping of subject matter. The wider the field covered, the greater this danger becomes.

The idea of using the same classification for all purposes is most attractive and it was only abandoned for a number of practical reasons after very careful consideration and with great reluctance. It was decided, however, to give the U.D.C. a trial in the shelf arrangement of books, and to use the experience so gained in deciding whether its use should be extended in other directions.

We have, therefore, arranged the text-books on the library shelves in U.D.C. order and maintained separate subject indexes both to general U.D.C. headings and to books on specific main subjects. This has proved reasonably satisfactory and has also shown that the U.D.C. is not suitable for some of our other needs, and in particular for classifying the abstracts in our *Survey of Literature*, mainly because technology is advanc-

UVAROV : CLASSIFICATION AND INDEXING

ing much more rapidly than is the expansion and development of the U.D.C.

We have, therefore, devised and developed a system of our own for classifying these abstracts, the principle of which is so simple that it is most likely that others have also thought of it. Although our own application is to the textile and plastics industries, with special emphasis on man-made fibres, it could probably be adapted to other industries dealing with a limited number of products.

The products concerned are divided into nine main groups numbered 1-9 and a general group numbered 0 as follows :

1. Cellulose, cellulose ethers.
2. Rayon in general.
3. Viscose.
4. Cellulose esters.
5. Synthetic polymers.
6. Vinyl and vinylidene polymers.
7. Proteins.
8. Textiles in general.
9. Plastics in general.
0. Other items.

These main groups are in themselves too broad and are sub-divided further ; the essential feature of our system is that this sub-division is parallel throughout the groups. Each of the main products has its chemistry, raw materials, manufacture, properties, and so on.. We therefore use a second series of digits as follows :

0. General.
1. Chemistry, structure.
2. Raw materials, solvents, plasticizers.
3. Manufacture.
4. Processing and treatment (dry).
5. Processing and treatment (wet).
6. Properties.
7. Applications.
8. Analysis and testing.

In general, any one of the first numbers may be used with any one of the second, giving a 2-digit number, thus :

- 11—Cellulose chemistry.
- 71—Protein chemistry.
- 33—Viscose rayon manufacture.
- 37—Viscose rayon applications.
- 88—Textile testing.
- 98—Plastics testing.

The abstracts in each class are also numbered and filed consecutively ; thus the first abstract we had on viscose rayon manufacture is 33-1 and so on. The composite number (class and consecutive) for each abstract identifies it permanently and completely and this has been found to save a great deal of time both for users and for our own staff, as we encourage users to ask for loans by quoting these numbers rather than full references.

This 2-digit system has been developed and extended since it was first introduced in 1945. It was found that the second digits 4 and 5 (dry and wet treatments) needed further sub-division. They were, therefore, split into a number of processes each denoted by a third digit. It was further found that the classification had to be extended to cover other subjects in addition to the industrial products and processes I have already mentioned. We have therefore introduced two other main sections: the 'Applied Science' section already described was called Section B and to it were added A—'Pure Science' and C—'Engineering'. Both of these new groups are also sub-divided into a number of classes with 2-digit numbers. All readers of our *Survey of Literature* have been supplied with a pamphlet explaining the classification. This pamphlet gives the classification tables in full and also contains an alphabetical guide showing in which classes various subjects are to be found.

One important task which we have undertaken is the preparation of a complete catalogue of the books held in our organization. This involved two problems; firstly, to obtain full and accurate details of the holdings of all the separate libraries, most of which have grown up independently over many years and cover a number of highly specialized fields; secondly, to combine these details and present them in a suitable form. The first of these problems is, as can be imagined, a formidable task and is complicated by the fact that the libraries are scattered all over the country; however, it is outside the scope of the present paper. Deciding the form of the catalogue was one of our greatest problems and it remains to be seen whether our final solution is the ideal one.

It was evident that some form of classified catalogue would be necessary. The U.D.C. was rejected as a form of classification on practical grounds. The principal reason was that when we have been asked to supply lists of available books on specified subjects we have almost invariably found that the subject named did not correspond to a consecutive section of the U.D.C. That is, we have found that books which should be grouped together from our point of view would be scattered in widely separate parts of the U.D.C.; in short, we rejected the U.D.C. for this purpose because it did not suit the requirements of our users. The system used for the *Survey of Literature*, although convenient for abstracts of current literature, is less suitable for books and was, therefore, rejected also for this particular purpose.

We therefore decided to devise a simple scheme specially for this catalogue. The aim was to enable the user of the catalogue either to find a specified book, or to find a choice of books on a specified subject, with minimum effort. We wished to avoid the use of special numbers or symbols so as to make the catalogue simple to use. The main part of the catalogue is composed of a limited number of general classes, arranged in alphabetical order; in each class the books are listed in alphabetical order of authors. The second part of the catalogue is an alphabetical author index showing the subject class for each work.

The choice of suitable classes was dictated by experience in our own library and did not present any serious difficulties, but care had to be

UVAROV: CLASSIFICATION AND INDEXING

taken in limiting the number of classes. To find his book, the user has to perform two separate operations; he first decides in which class the book is likely to be found and then searches this class. The greatest effort required of him is to read the full list of class titles, and then to read the full list of books in the chosen class. To reduce this to a minimum is quite simple in theory; it is quite easy to show that the sum of (classes plus average number of books per class) is least when the number of classes is equal to the number of books in each class. For example, a catalogue of 1,000 books is best divided into about 30 classes with about 30-35 books in each. The user would have to read, at most, 60-70 headings; with 10 classes of 100 books each, he must study up to 110 headings. We have, therefore, chosen a suitable number of subject groups for the catalogue on these lines, and are now engaged in preparing the catalogue for distribution within our concern.

A great deal has been said on the subject of alphabetical indexing and particularly on its defects. In this connection, the paper by Pollard and Bradford (1) is very important, as is also the subsequent discussion. The late Dr. Bradford is well known for his strong views on the faults of alphabetical indexing and the merits of the U.D.C., and these views are put forcibly and plausibly in this paper. They are contested in the discussion with equal force and plausibility, so that both sides of the question are presented, making the paper one that should be read by everyone concerned with indexing. The same problem is treated at much greater length in Dr. Bradford's book, *Documentation* (2). In this characteristic book the opposite view is represented by a series of arguments selected and refuted by Dr. Bradford himself.

It is abundantly clear from these publications, and from the personal experience of everyone who has ever compiled alphabetical indexes, that such indexing has many inherent defects of which every beginner should be aware. A number of authorities hold the view that all items of information should be arranged by a comprehensive classification system; 'ingenuity in indexing' has been deprecated as being an inferior substitute for classification. We are of the opinion, however, that if such ingenuity makes information easier to find, it is justified in practice.

It is not within the scope of this paper to repeat all the arguments for both sides of this question, but it may be useful to outline the considerations which led us to adopt the extensive use of alphabetical indexing.

The U.D.C. can be used to denote accurately the subject matter of a piece of information by means of numbers and other symbols, provided that (a) the classifier thoroughly understands the system and the subject matter of the information, and (b) that the U.D.C. has been developed to cover the subject adequately. The items can then be simply arranged or filed in order of their U.D.C. numbers. On the other hand, the resulting U.D.C. number may be very lengthy and the ordinary user may not be able to find what he is looking for without reference to the alphabetical index, the compilation of which demands considerable 'ingenuity in indexing'.

With an alphabetical system there is danger of ambiguity, although I

believe this has been greatly exaggerated. Pollard and Bradford (1) quote the example of 'Lead, Kindly Light' being put together with 'Lead Pipes'. The combination of an indexer who commits such a howler with a user who is misled by it is indeed a formidable one, but I hope it is unusual. Ignorance of the subject can lead to similar errors with any system, such as the reputed classification of P. G. Wodehouse's novel *Laughing Gas* under the U.D.C. number 546.172.5 (nitrous oxide). No system of classification is a cure for stupidity or ignorance. In the *Encyclopedia Britannica* 'Sumerian Language' is immediately followed by 'Sumer is icumen in', but I have never heard of this being quoted as a valid reason for rejecting the alphabetical arrangement of entries in the *Encyclopedia*.

It is well known that the same idea may be expressed by a number of different words, and, conversely, the same word may represent a number of different ideas; but with careful and intelligent control of the indexing words used, the danger of this may be greatly reduced.

With these considerations in mind, we have decided on alphabetical subject indexes for detailed information both in the literature and in internal reports. Careful control by means of clearly defined rules is essential; this control should be in the hands of one who understands the subject matter as well as the principles of indexing. The actual indexing can then be left to an intelligent operator.

The chief material for our subject index is provided by our *Survey of Literature*. This is classified as described earlier in this paper, but we have found that this general classification is not always sufficient for tracing specific items or for making detailed searches, and we have, therefore, developed an alphabetical subject index. The two systems—the collection of classified abstracts and the detailed alphabetical index—are supplementary and are kept side by side. Neither is sufficient in itself but judicious use of one or the other, or both, depending on circumstances, has given good results. Typical headings in the index are:

AUSTRALIA

AUTOCLAVES

AUTOXIDATION (see also OXIDATION)

'AVISCO'

AZEOTROPIC DISTILLATION (see DISTILLATION)

'AZLON'

AZO DYES (see DYES—Azo)

Each main heading is considered as being potentially divisible into sub-headings, e.g.:

DYEING (general)

„ acidity control

„ cellulose acetate rayon

„ cotton, etc.

Each heading or sub-heading is typed in capitals at the top of an 8 in. by 5 in. card and the separate entries are then typed consecutively on the appropriate cards giving the *Survey* number, bibliographical reference, and two or three descriptive words. The index is controlled by means

UVAROV: CLASSIFICATION AND INDEXING

of a carefully prepared list of headings in which overlapping ideas are connected by cross-references and likely synonyms are all referred to one heading. The indexer has instructions not to add new headings without permission or to deviate from the rules.

Although this index is extensive, it is very selective. We do not attempt to index in detail material which is already effectively covered elsewhere, such as general chemistry, which, of course, is done very much more fully by *Chemical Abstracts*. We do, however, enter in detail numerous aspects of the products or processes with which we are most concerned.

The indexing of internal reports presents some of our most complex problems, many of which do not arise in relation to ordinary literature. Some of these may be illustrated by an imaginary example. We will suppose that an industrial concern is engaged on investigating a potential new process in its research laboratories, and that this is likely to be followed by development and production stages. If the process is something quite new, there is unlikely to be a place for it in the U.D.C. nor would it have an accepted name. Descriptive words associated with it will change rapidly at a time when interest is greatest and quick reference is most important. The process may start as the study of the chemical reaction between X and Y. It may then be found that the reaction gives an interesting product Z, and the preparation of Z, perhaps by other means, may become important. Z may then be given some local or 'trivial' name, or even be denoted by a code symbol. This name or code symbol may possibly be changed several times and when finally the product is released it will probably be given a registered trade name. This course of events may take months or even years and will be accompanied by research reports on numerous aspects. The information officer must be prepared to supply immediately any required information on any of these aspects. To do this he must have a thorough knowledge of the subject and be himself fully aware of what is going on. The problem is complicated by the fact that the subject matter is usually highly confidential and security has to be ensured. The indexing must, therefore, be in the sole hands of a responsible individual.

In our own organization the problem is tackled by a system which is rather similar to that used for published literature. All reports are listed, with very short abstracts if necessary, the list being issued to certain senior members of the company. Each month a copy of this list is also cut up and the separate entries are mounted on 6 in. by 4 in. 'Cope-Chat' punched cards. These cards are clipped according to a code which enables any given subject or combination of subjects to be selected. The reports are then abstracted in detail on the cards, and the latter are then used for preparing a quarterly classified summary. This again presented a serious classification problem. The subject matter had to be classified, not according to any recognized system, but in such a way as to provide certain sections of the organization with only that information which is relevant to their work. This meant that the classification had to be based on the distribution of various aspects of the work within the

organization and not on any other principles. The classified bulletin which is prepared in this way is then used for compiling a subject index very similar in principle to that used for the literature. This index is, however, kept separately from the literature index because of its confidential nature.

Another task we have had is the preparation of an index of textile chemicals. These are usually known by trade names, their composition is almost always complex and often not disclosed, and the same compound may be sold under different names by different firms. Information on such products is available from manufacturers' pamphlets, the technical press, laboratory investigations and various other sources. In practice, the laboratories using the materials often have better access to information on the subject than anyone else, and we have, therefore, enlisted and obtained the help of our laboratories in this task. We ask them to supply us with all known details of any such chemicals which they may meet; we add this information to that collected by ourselves, and periodically issue to each of the laboratories sets of index cards giving the data so obtained.

A card, 8 in. by 5 in., is prepared for each separate trade product. The card has headings for (1) the trade name, (2) empirical formula if known, (3) chemical type, (4) uses, and (5) name of manufacturer. It can thus be filed as required according to any of these aspects; we ourselves keep five separate files, one for each aspect. The card also gives details on the properties, uses, price and source of information.

Time will not permit me to describe the many other indexing and classification tasks which face us, in common with many other industrial information departments; many of these are not provided for in the standard systems but, as the information officer soon discovers, are nevertheless real and practical problems.

I must end by stressing that all these considerations are based strictly on the needs of our own organization, and are not intended to disparage the conventional systems which are fortunately available for the non-special librarian. What the industrial information officer or librarian does, and how he does it, must be dictated by the needs of his employers. He may have to modify standard methods to suit his concern; he is unlikely to be allowed to change the concern to suit accepted library procedure.

In conclusion, it gives me great pleasure to acknowledge the permission of the Directors of Courtaulds, Ltd., to present this paper, and also to thank my staff for their willing co-operation in putting into practice the ideas I have outlined.

REFERENCES

- (1) The inadequacy of the alphabetical subject index. A. F. C. POLLARD and S. C. BRADFORD. *Proc. 7th Aslib Conference*, 1930, pp. 39-54.
- (2) Documentation. S. C. BRADFORD. Crosby, Lockwood & Son, 1948.

USE-DEVELOPMENT ORGANIZATION IN THE TEXTILE INDUSTRY

BY C. P. TATTERSFIELD

Use-Development Organization, Courtaulds Ltd.

Birmingham, 14th June, 1951

RESEARCH to the layman usually implies either search after new abstract knowledge, or knowledge leading to the production of new matter. This, however, is only one aspect of research and there are many others covering all facets of human endeavour. One form of research, only relatively recently appreciated as such, is utilization research or use-development.

This last-named is an essential part of any progressive industry and is complementary to product or production research just as 'sales' is complementary to 'production'. Often, however, use-development is not recognized as a separate entity, and is carried on as a subsidiary function of product development or of sales. That is, the man who produces something new also has to find uses for it, or the man who sells a product looks for increased sales in new directions.

This was the position in my own company, Courtaulds, Ltd., and the outstanding position of the Company after 150 years' history is a tribute to the successful use-development work of all sections of the Company.

Some four years ago it was considered desirable to set up some organization within the Company to direct and co-ordinate this utilization research and so the Use-Development Organization came into being with its headquarters in Manchester, the centre of the textile industry.

By its existence, it becomes possible for the first time to arrive at some estimate of cost to the Company of this type of work, expenditure formerly being lost in research, sales or general development accounts. To-day, not only are we able to present a budget of anticipated expenditure, but to break it down into expenditure in the various main fields of endeavour. By the use of a 'project' system, described later, it is also possible to arrive quickly at a figure of actual expenditure on any one project or piece of research. It would be an exaggeration to suggest that such a figure represents the true cost of the work carried out, as often outside firms and organizations make no charge for the help they give us because they consider the experience gained in participating in a development trial outweighs the expenditure and inconvenience occasioned.

On the credit side of the accounts the picture is far from complete, as it is often impossible to determine the effect of any particular development on the sales of a company's product. Indeed, it may be argued that from a short term—and short-sighted—point of view, there is no need to develop new uses for products, the suppliers of which are unable to

meet present demands. This argument is equally applicable to any sort of research and development in these abnormal times.

One effect of world shortages of fibres on use-development policy has been the tendency to discourage mis-use in addition to encouraging merit-use. Mis-use arises through the desire of the manufacturer to use synthetic fibres as substitutes for the natural fibres which are too scarce or too costly, without consideration of any changes in manufacturing procedure he should make to utilize fully the very different properties of the new fibres. In more competitive times this mis-use quickly recoils on the manufacturers' heads, but to-day too often a product is put out which does not give the consumer satisfaction, nor do justice to the newer fibres.

Before proceeding to the functioning of our own Use-Development Organization it would be desirable to consider first the products available for development.

Shortly after 1900, after 100 years as manufacturers of silk fabrics, Courtaulds, Ltd., became interested in the 'artificial silk' which had then been produced by the British inventors, Cross and Bevan. In the last fifty years the production of 'artificial silk', or, as it is now called, rayon has progressed to such an extent that it has far outstripped the cloth manufacturing activities of Courtauld's business. The Company, therefore, is primarily a producer of textile fibres and secondarily of textile fabrics. For its fibre production, the company is also a large producer of chemicals, especially sulphuric acid and carbon bisulphide.

Rayons may be sub-divided into two categories, continuous filament, that is, threads composed of fibres of almost infinite length, thus resembling real silk, and staple fibres, that is, fibres cut to a definite and relatively short length, therein resembling wool, cotton, flax or jute.

Synthetic fibres can also be varied in their chemical composition, lustre, colour, fineness, length of staple and many other properties, so that a Use-Development Organization is fortunate in having raw materials of great versatility, which make them adaptable to a great variety of uses.

The scope for use-development in consumer goods is much more limited. For example, it is difficult to find alternative uses for, say, tablecloths or carpets. The production of knitting instructions for an ever-widening range of garments put out by the manufacturers of hand-knitting yarns may be considered as an example of use-development work on consumer goods.

Constitution

A Use-Development Organization is primarily technical and its officers must be technically trained. They must not only have a good knowledge of their raw materials but, more importantly, of the field into which those materials will be absorbed, in the present case, chiefly textiles.

The Courtaulds Use-Development Organization consists, therefore, of officers with a wide textile background. One deals with the cotton industries' requirements, one with the Yorkshire or wool industries, and

TATTERSFIELD: USE-DEVELOPMENT

one with the flax and jute industry. Another officer deals with industrial uses, particularly in the rubber industry, which absorbs enormous amounts of a specially strong continuous filament rayon for tyres and conveyor belts.

Thus, the major textile fields are covered, but in addition there is an officer to deal with dyeing and finishing problems and an officer in charge of a serviceability unit which is responsible for evaluating any new fabric which might be expected to have novel features from the consumers' point of view. Whilst much can be learned from laboratory trials and analyses, it is not yet possible to evaluate a fabric in a new use entirely by laboratory techniques.

In addition, a further member of the staff acts as liaison between the U.D.O. and research, ensuring a proper flow of new ideas and of basic information on new products. This 'research' consists not only of the company's various research laboratories, but also outside research bodies, particularly the Universities' textile departments and research organizations under the ægis of the D.S.I.R.

Another member of the staff, where necessary, deals with the sales development of a new product before it is sufficiently developed to be taken over by the normal sales departments of the company.

Except the industrial research and the Yorkshire type research, all the staff is housed in one building, ensuring complete and continuous co-operation among its various members.

Even with this staff it is not possible to cover adequately all lines of development, so that a panel of experts within the company representing all departments has been formed and members can be asked to sit on committees dealing with special subjects, e.g. knitting.

Outside and beyond the work of the staff and the various committees, there exist ample opportunities for use-development work by any and each member of the company, and it would be unfortunate if through the formation of a use-development organization, individual thought and effort by employees—or even directors—of the company should be stifled. On the other hand, an active use-development organization should encourage and bring to fruition much that would otherwise lie dormant.

A use-development organization also has a responsibility in translating the needs of the user industry (in so far as they are not met by existing products) to the product research department to stimulate them into filling the gap.

All this work is directed by the manager, who is responsible to a small executive committee which, in turn, is responsible to the board of directors of the company.

Lastly, I would like to deal with the side of our work which must be of most interest to you, namely, information.

This I would discuss under three headings:

1. Collection.
2. Collation.
3. Distribution.

The first major collection of information was made when the staff was assembled. A unique body of experience not available in libraries or filing cabinets and hitherto scattered throughout the company was brought under one roof and is readily available for any problem which might arise—this wealth of experience is continually being enriched by intimate and friendly relations with the 'trade', users and potential users of the Company's products.

The published word, too, is amply covered. Indeed, a major problem of an organization such as ours is the compromise between an adequate study of current literature and the possibility of overlooking some pertinent ideas in an attempt to save time. In U.D.O. headquarters, for a technical staff of eight we purchase eleven journals and borrow ninety-five journals in general from our central libraries in Coventry and London. Summaries of literature, though extremely valuable, are not a complete answer, as often the abstractor looking from a more general viewpoint, may overlook the minor point which is of vital interest to us. Valuable help is provided by our own librarian, who is familiar with our particular—and often peculiar—interests, and is, therefore, able to mark these articles—or even advertisements—which are of interest to a member of the staff. This is especially valuable with a paper such as the *American Daily News Record*. Its forty or so pages per day would not be tackled by the technical staff seeking the odd paragraph or column of interest, but when scanned conscientiously by the librarian each tit-bit can easily be brought to the notice of the interested individual.

Two very valuable sources of information are reports from the research departments of the Company and information from abroad.

Having in our Company a well-developed technical information bureau, whose services are readily available to us, and being within easy reach of the library and information facilities of such bodies as the Shirley Institute of the British Cotton Industry Research Association, the Textile Institute and the Manchester Central Library, we have resisted the temptation to build up complete and comprehensive information files, but rather have concentrated on a sort of 'intimate file', filing information in which we are particularly interested but which might have slipped by or which may not be available to these other and larger authorities.

Much more important is the collation of information on the work being carried out by the organization. This is done primarily by giving a project number to each new job tackled, and the librarian keeps a punched card against each project. Whilst the individual responsible for the work keeps a full 'dossier' he periodically brings up to date each card so that in a concise form a complete picture of work in progress is available. The punching of the cards, which to date number 873, covers the author of the work, the fibres or products used in the work and the end-uses envisaged. It is thus possible to see at a glance what work is being done to develop new uses for a particular product or what progress is being made to achieve a particular end-use.

The dissemination of information takes various forms and is achieved in various ways.

TATTERSFIELD : USE-DEVELOPMENT

In fabric development one main method is by the issue of patterns of new fabrics which achieve a satisfactory performance in laboratory trials or serviceability tests. These patterns, together with the basic information on their production, are issued to all sales staff and to various offices and departments within the company, and also to any outside firm which has helped in their production, perhaps a spinner, a weaver or dyer. In this way the patterns permeate the industry and stimulate it into using the company's products in new directions. These patterns lead to requests for further details and by direct contact further information is imparted to the potential user.

Where a particular development is the result of direct co-operation between the U.D.O. and a user-firm then direct contact is, of course, the main channel for the interflow of information.

Broad lines of developments are covered by lectures by members of the staff and the publication of papers in the scientific and technical press.

SCOTTISH BRANCH CONFERENCE

THE SCOTTISH Branch of Aslib held its 1951 Conference in Edinburgh on 25th May. The meetings were held at the Royal Society of Edinburgh and delegates were welcomed by Professor James Kendall, F.R.S. The opening address was given by Miss Margaret Herbison, M.P., Joint Under-Secretary of State for Scotland. Notes of her speech follow :

MISS MARGARET HERBISON'S OPENING ADDRESS

The Association of Special Libraries and Bureaux, in encouraging industrial firms to develop their own information services in technical and scientific subjects, is doing valuable work to assist the application of scientific developments in Scotland.

One of the major problems of Scottish industry is that in the inter-war years it did not keep pace with England in the development of new processes and the expansion of the new industries based on scientific research.

We have, of course, for long had admirable facilities for research in agriculture and fisheries, and Scottish firms in the older basic industries, such as shipbuilding and iron and steel, are second to none in their active pursuit of new techniques and new developments. But we have lacked the same advantages in the lighter engineering and electrical industries which developed so rapidly between the wars. All the development of the radio industry, for instance the radar which played such a large part in winning us the war, and other devices, took place in England. The results were cumulative in that once the newer industries had started to grow in one place they developed their research activities, increased contacts with one another and with scientific institutions, all of which in turn led to further growth of industrial capacity. Areas which started badly fell further behind in the race.

This meant that in Scotland we did not make full use of the technical and scientific man-power we produced. In 1947 it was estimated that Scotland had 16 per cent of the physics and chemistry students and 22 per cent of the engineering students in the United Kingdom ; but only 4 per cent of the qualified workers employed on research and development in industry. Many of our engineering and science graduates were thus forced to seek their living elsewhere.

But within the last few years much has been done to redress the balance. Among major new developments are the construction of the Department of Scientific and Industrial Research Mechanical Engineering Research Laboratory and branches of the Fuel, Road and Building Research Stations at East Kilbride : and all the admirable work of the Scottish Council (Development and Industry) in seeking to promote the expansion of research facilities by Scottish firms and making Scottish industry more research minded.

All this, however, can only go part of the way. It is necessary not only to see that a fair share of the research carried on by the Government and

SCOTTISH BRANCH CONFERENCE

by industry is located in Scotland ; but also that the results of this research are made known and available to those whom it can assist, and especially those without the resources to carry on research on their own. To provide means of contact between laboratories and research institutions and the users of their discoveries is, of course, one of the main objects of the many research associations which have been set up by industry. As examples in Scotland, we have the British Jute Trade Research Association with its headquarters in Dundee, the British Cast Iron Research Association which has a laboratory at Blantyre and is concerned especially with the light castings industry in Falkirk, the work carried out for the woollen industry by the Wool Industries Research Association in the Scottish Woollen Technical College at Galashiels. These Associations have a large membership and aim to see that information is circulated as widely as possible through technical journals, personal contacts with firms and other means.

There are still, however, many firms who are not sufficiently in touch with the latest technical developments and it is here that the work of a body such as Aslib can be of such value. To increase their means of contact is especially important in Scotland as, despite the efforts made in recent years, the majority of technical institutions and research associations are still located in England and the customer in Scotland has less opportunity and consequently perhaps less of an urge to keep in touch with their work.

The Scottish branch of Aslib, although only formed some two years ago, is already making considerable headway. Membership is not yet large, but it includes research centres at colleges and universities, technical associations and industrial firms who have already established research departments.

I understand that Aslib in Scotland is helping to make available to industrial and commercial concerns information about new markets, new or improved products, new methods of manufacture, management, and so on. By collating all the information about scientific and technical research, it is helping to spread knowledge of the utmost value throughout Scotland. I am glad to see that your Association believes that the right way to approach this spread of knowledge is for industrial firms to start intelligence sections or appoint an 'intelligence officer' or special librarian whose job it is to maintain contacts with research associations, to keep in touch with new developments, and to have available all sorts of references to matters connected with their particular industry. It is only by the firms themselves becoming increasingly aware of the importance of keeping abreast of new developments that progress can be maintained, and those who take advantage of the services that Aslib renders will, I am sure, have their reward in better and brighter products which, in turn, will bring increasing trade.

I have much pleasure, therefore, to-day in opening your Conference, and I hope your deliberations will prove most useful. I wish your Association every success.

AN INTELLIGENCE OFFICER IN INDUSTRY

By V. E. PARKE, M.A., D.Sc.

Intelligence Officer, Billingham Division of Imperial Chemical Industries

Edinburgh, 25th May, 1951

Summary

DR. PARKE emphasized the great variety of intelligence work, anything from a few reference books in a manager's office to a full-grown section with a staff of two dozen or more, and from close attention to the detail of a single department to the whole interest of an entire works. It appeared that the officer (especially in a new post) had to take the field offered to him and try to cultivate it by friendly helpfulness and increasing knowledge, by developing in the factory the habit of using his section and by making the habit worth while. Aslib members and intelligence officers were well aware of this but it was their function to make it widely known. In this they had the encouragement of such authorities as Sir Edward Appleton, Sir Henry Tizard and the Lord President of the Council.

Information work rested on a double foundation, institutional knowledge and subject knowledge. There was much technique to be learned in every branch of the work, but, as it was well described in *Aslib Proceedings* and the forthcoming *Aslib 'Handbook'*, it need not be detailed again. How valuable it could be, often in unexpected ways, was emphasized by a note from a student of the last *Aslib Junior Study Course*:

'I found the Course rather more helpful than I had expected on reading the programme. The week provided an opportunity to meet people who had confronted and conquered problems with which I was faced and especially it yielded contacts for the loan and purchase of material.'

Separation of knowledge of one's firm from knowledge of its subject field could only be done formally; they were really inseparable and they supported each other in everything the intelligence officer did. For a new man, especially one with little subject knowledge, and for a newly founded section, however, the institutional type of knowledge was easier to get (up to a point) and probably more immediately useful too. It involved setting out to get personal knowledge of the whole of the firm's staff, trying to meet them in their surroundings and getting them to visit the intelligence section and speaking to them there. It meant learning what work was in hand, and its background both as a matter of technical knowledge and as a matter of the firm's history and plans. It meant learning something of the arrangement of jobs and special interests — 'who knows what?.'

This kind of knowledge grew slowly, partly because it was probably nowhere written down and partly because a new information officer had

PARKE: AN INTELLIGENCE OFFICER

to show that he could be trusted on a more and more important scale. It might only be got after overcoming prejudice and resistance; the information officer having to prove again and again his tact, patience and resourcefulness. But there was no doubt of the value of a success here. It would put the intelligence section right inside the life of the firm and increase its opportunity for service as few other achievements could.

Detailed results would come too. Knowledge of interests and plans would help in buying material, in attracting suggestions for purchases, in picking up handy bits of knowledge, in retention and binding arrangements for periodicals, in filing and indexing all one's holdings. Again, it would help in getting control of the firm's own technical records and in handling them; knowing how to separate them into grades of confidentiality, presenting them to managements, bringing them to notice when they could throw new light on problems and even in laying down rules as to how they could best be written and preserved.

An information officer who had 'grown into' his firm might help to break down barriers by improving co-operation, by making contacts with people outside, by using special knowledge of his own that his clients had come to appreciate. He also would attract jobs that would increase his standing and usefulness; giving lectures to beginners, knowing the local library or technical college, providing reading lists and material for odd subjects like nurses' courses—in an almost unlimited list of small ways.

It would be impossible to exaggerate the value of this growth. For it increased not only the opportunity for service but also the respect in which the section's property and its rules were held—and that made for much improved conditions of work all round.

Unfortunately, the way of doing this could not be taught, but help in developing it could come from attending Aslib courses and conferences and comparing experiences and methods with one's colleagues.

Subject knowledge in the field of one's firm's work was recognized as of great importance; but opinions differed as to the standard required. There was no doubt that the highest practicable standard should be aimed at because the higher it was, the better it dovetailed into knowledge of the previous type. It facilitated understanding of the firm's plans and organization and appreciation of the needs of its staff. An intelligence officer should encourage his section staff to read not only in the immediate field but also in related fields because of the importance of 'cross-fertilization' between different branches of knowledge. As an illustration of the wide spread of subject interest, the speaker gave some details of his own section. The factory was concerned with heavy chemical manufacture, on the inorganic side, fertilizers, acids and cement and, on the organic, petrol and related substances. But the library carried text-books, reference books and pamphlets on almost the whole range of pure chemistry, as well as on technology, including fuels, metals, refractories and water. There were large sections on physics and engineering, in all their many branches, while geology, geography, mathematics, law and commerce were all represented. There was a big collection of maps. The books

were supported by about 500 current journals of a similar range of subject, many bound and kept in runs of twenty years or more. The section also housed the firm's private records of research. All this raised large-scale problems of finding and selecting material, purchase, cataloguing and indexing, storing, binding, lending and recalling and purging of stocks.

The fundamental aim was to maintain as widely as possible throughout the works staff the habit of seeking out existing information relating to every sort of problem and to provide with the minimum delay the really helpful item in a very wide range of situations. This meant not only receiving the material but making it known, and it involved borrowing and lending, the preparation and issue of bulletins of abstracts, circulation of periodicals, keeping information files and making translations.

Clearly, no one officer could be expert in all the matters necessary. An attempt had been made to build up an integrated staff which was aware of the section as a whole and ready to deal with enquiries as far as possible directly and without making 'bottlenecks'. Visits to the works were arranged, for example, to make the section staff known and to get hints as to subjects of interest which would guide abstracting. Even the best available techniques of librarianship and filing had serious limitations, but it was hoped to overcome them by strengthening the 'service mind'—lively, retentive, co-ordinating, helpful—in the section. There were not yet any formal qualifications for an intelligence officer. Good subject training was probably the best available and an interested officer could readily learn enough 'librarianship' to meet his needs. Library Association qualifications also were valuable; chartered librarians could often pick up enough subject knowledge to deal with the simpler enquiries, but the best work needed more than that. Aslib had run an annual junior study course for some time and was now going to experiment with a course on a senior level; various library schools were also considering the problem. Although it would never be possible to teach the essential details of the plans, organization and history of individual firms, study of techniques and personal contact with fellow officers might help to induce the correct attitude to intelligence problems and show how to build up a section into an indispensable part of a firm.

There was no adequate test of the efficiency of an intelligence section. There were good tests of its mechanics; relevance of its stocks, good methods of office routine and librarianship, speed and neatness in answering enquiries, avoidance of useless activity. A section that met all these requirements would be a good one, but there was a subtler and less measurable requirement: that the section should develop a tradition of friendliness, versatility and service.

Summing up, the lecturer pointed out that intelligence work had no clearly defined field, no exclusive methods and no uniform place in a firm. It was largely an art depending on knowledge of the firm and its field and requiring a measure of personal acceptability and the service attitude. It was, therefore, liable to meet more resistance and difficulty in its development but its opportunity was all the greater thereby. It

PARKE : AN INTELLIGENCE OFFICER

could integrate itself into the life and purposes of its firm so as to become an indispensable part of them. It could set before itself the aim of becoming an outpost of knowledge and a source of technical encouragement.

Opening the discussion, DR. D. G. BROWN (the President) said he was sure they were all as sorry as he was that Dr. Parke had come to an end. They could have gone on for much longer listening to him. The subject brought out one point Dr. Parke modestly forbore to mention—the great value of long experience in this work. Dr. Brown hoped they would all be determined to get as much experience as possible, because there was no substitute for it.

MR. AGARD EVANS (Ministry of Works) said that perhaps he could perform the usual service of ice-breaker. He would like to ask Dr. Parke this. He had got a good organization which had been going on for some time. He had got a staff of twenty-four, including the office boy. A tremendous number of quite largeish firms, possibly not as large as I.C.I., thought they could set up an intelligence service by having one man with a salary of about £600 with a couple of assistants. These firms said, 'Now, there you are, go and produce the stuff'. Dr. Parke found that it took a staff of twenty-four and a good deal of long experience to produce the stuff. Had he any words of advice to the man who found himself thrust into that position? How could he develop the trust and faith rather grudgingly given by his management in trusting him with that job so that at the end of a measurable time he, too, would have a staff of twenty-four?

DR. PARKE replied that he thought the thing to do there would be to assume that the intelligence section had been set up because the firm had some sort of idea that it was worth while. It would then be desirable to try to get a heart-to-heart talk with some senior official and find out what the firm really expected and how it wanted to be served, so that a collaboration was set up from the beginning. As many of the needs as possible should be met quickly and the whole thing developed as technique was thought out. He was sure it would have to be crab-wise, as it were; there was no royal road.

MISS HANDLEN asked Dr. Parke if he insisted that the users of his library or his intelligence information centre should come to him? Did he not in his organization have something that took publications or intelligence from his section?

DR. PARKE answered that they had. He mentioned the Bulletin. About seventy copies of the ordinary Bulletin were issued. These were circulated round, and so were many of the journals. An amazing amount of 'rapacity' was found in some places. They found people insisting on seeing something like thirty journals, and they tried to lay down the law that nobody should see more than six. In the end they achieved a very considerable reduction. Dr. Parke remarked that the factory was a mile long. Other intelligence sections were much more drastic and insisted that the journal should come back to the library every time it had been read by somebody, even though the next recipient was on the other side of the same table, but at Billingham they just could not do that. They tried to make the senior typists in the various sections of the factory responsible for seeing that the matter passed with sufficient speed through their sections. That, he thought, they would have to keep on drumming at. He intended to try the effect of more frequent visits by the clerk in charge of circulation centrally to the local sections.

Many readers did, in fact, come to them, both for specific reading and for browsing: the latter especially just before and just after lunch. The library was recently reconstituted on the bay system and it was arranged to make eight bays about 9 ft. wide, each devoted to a section of the stock. To get free space in the current journal bay they had to design a new display stand and ultimately got one that took up no space more than an ordinary book stack and yet displayed up to 100 titles. It was 12 ft. long, 6 ft. high and 1 ft. deep.

A MEMBER asked if Dr. Parke could say whether it was possible or if it might become eventually possible by research to show in plain terms of £ s. d. what the value of an intelligence service was to any particular unit.

DR. PARKE thought that would be permanently impossible, for the reason that all the important projects grew up gradually. The intelligence officer was important in all the stages of the growth, but he was always in the background; he was providing

something for somebody else to use. It was the research man and the technical man that appeared important. One could only rely on the technical people digging in their heels and saying, 'We must have an intelligence service'. One of Dr. Parke's colleagues had a letter written to the Board of an alkali company, getting on for seventy-five years ago, by one of the first of the eminent technical chemists in this country, on his appointment. He was asked to design his laboratory and the list of his requirements began 'No. 1—Library'.

A MEMBER enquired whether, with a mile of territory to cover and a staff of twenty-four, there was a tendency to decentralize. Were Dr. Parke's staff crowded together centrally or were they dispersed round various departments?

DR. PARKE replied that his own staff were in one place. There had been a talk once or twice about having what could be called a branch library, but it had never been taken up and they rather frowned on it. What they did have was books on permanent loan. A man might have a small collection of books referring very specially to his work, but they belonged to Dr. Parke officially and the borrower was responsible for them.

THE MEMBER asked whether journals were also allowed on permanent loan.

DR. PARKE said that in a few special cases this was allowed, but that was much more exceptional than with books. A lot depended on the man. There were some people who liked to have about them a number of books, and there are others who liked to come into the library and use them there.

A MEMBER asked whether that meant that the library equipment included a bicycle.

DR. PARKE said there were lots of bicycles belonging to the messenger service which carried their material as part of its job.

A LADY MEMBER asked, as a supplementary question, whether if a group of books were sitting out with an individual or a branch library, were these books duplicated in the main library, or did Dr. Parke call on them when they were needed for the main library.

DR. PARKE replied that they were very rarely duplicated. One condition of taking a book on permanent loan was that it must be turned in on demand.

Elaborating this point, A MEMBER enquired whether it meant that while the journals were circulating they were not available in the library.

DR. PARKE said that often that was so. There were a number of cases where they had multiple copies and where one was always kept in the library. Theoretically, he knew where they were all the time, and they were chased up and brought back when required.

A MEMBER asked what proportion of the periodicals, if any, were lost.

DR. PARKE answered, not many. He had no figure for that, but there was a sort of safety valve inasmuch as they needed to get more copies of the more general things than were bound, so that they could afford to lose one or two.

THE MEMBER remarked that when it came to binding, even in a small library, it was quite a scatter to find out whether all the periodicals were there. With this wide distribution over a wide area, it must be difficult to call them in again.

DR. PARKE replied that people had become trained, and the periodicals did come back, but sometimes a part had to be bought to complete a binding.

MR. THOMAS moved a vote of thanks to Dr. Parke for his interesting and important address, and this was heartily accorded.

WHAT IS AN INFORMATION OFFICER ?

BY ERIC N. SIMONS

Publicity Manager, Edgar Allen & Co., Ltd.

Birmingham, 21st November, 1951

Shortened version

LET ME say at once that I do not like the term 'information officer'. We are so snobbish to-day that we cannot bear to be 'rankers', and this means that, whatever our jobs, we must put the word 'officer' after them, as though that took us out of the common horde of ordinary people, paid to work for their living. Some thirty-odd years ago, when I first took up publicity, we were all called advertising managers; then that did not seem big enough for us, so we christened ourselves publicity managers. Now, I understand, we are public relations officers, and before I die I expect to sign myself Lord High Director of Information for the Public.

However, the term 'information officer' is there, and for the present, at all events, we must abide by it. The information officer, then, is a man in either a large or small organization whose fundamental job is not to keep a library of books, but to provide quickly and accurately such information as is required by any member of the firm, as a help in the carrying out of his professional duties. People have curious misconceptions of other people's jobs. A publicity manager, for example, is not merely a man who writes advertisements, as some folk think, but one who may be called upon to edit magazines, write articles for the daily and technical press, compile catalogues, draft circular letters, prepare layouts for the printer, purchase the work of artists, and even do art work himself, organize internal duplicating and addressing systems, write the dialogue and prepare the scenarios for films. He is expected also to be an expert on typography, printing, block-making and paper. In the same way an information officer is not merely a man who collects books and distributes journals, but one who must be familiar with the organization of a library; with sources of information; with abstracting and the writing of précis; with at least two languages and the technical terms they contain covering his own particular industry; with systems of classification; methods of reproduction; indexing; filing; abstracts journals; and so on and so forth. Now each of these activities has been the subject at some time or other of entire papers in the various publications of Aslib, and I do not propose in this brief talk to do more than lightly skip over some of them in what I believe to be the order of their importance.

First of all, then, in my view, the essential and principal requirement of an information officer is familiarity with sources of information. Like the journalist, he need not know, but he must 'know how to get to know'. Without this he cannot expect to deal quickly and competently with the many queries that will come to him from A, B, and C, of his own organiza-

tion. He may be asked : What are the facts regarding the use of boron in a 5 per cent nickel steel ? He may be asked : Are there any data available regarding the extraction of mica flakes from graphite ? He may be asked : What are the latest figures of magnetic value for columnar crystal magnets ? It is too much to expect the local library, even when it has as developed and efficient a commercial and technical section as Sheffield's, to answer these queries in the brief time available, for information is usually needed in a hurry. The information officer should know from his own experience and training that everything to do with 5 per cent nickel steel will probably be found in the publications of the Bureau of Information on Nickel. He should know that anything to do with the extraction of mica from graphite may be found in the files of journals such as *Mine and Quarry Engineering* and the *Mining Magazine*, or by consultation with the Royal School of Mines. He should know that the information on columnar crystal magnets can be obtained most rapidly from The Permanent Magnet Association or from such firms as Edgar Allen's, of Sheffield, or Phillips, of Blackburn. I quote these three instances merely as typical and because they come within my own sphere of knowledge, but similar instances will suggest themselves to almost anybody in this audience. Nevertheless, it is essential, of course, that the information officer should also preserve the friendliest possible relations with his local libraries, and not only obtain their co-operation where necessary, but also be willing, when desired, to put his own specialized knowledge and sources of information at their service.

Obviously, the local libraries, however competent, cannot contain every volume and reference work likely to be required in a particular industry, and this means that sooner or later the information officer must, of necessity, either establish, or assist in the establishment of, an efficient works library if one does not already exist. He need not necessarily be its librarian. That depends on the number of volumes, the size of the organization, and the amount of time he has available to devote to library duties. He must, however, assure himself that the library contains the volumes he considers indispensable, and that its contents are continually employed to supplement the information already provided by him in a more compact form. One of his primary functions will be to keep a daily watch on what is being published in his own particular field. While current professional abstract services will help in this, it must be pointed out that in many instances they will not completely cover his needs. Every industry and even every firm has its own particular angle and its own particular sphere of interest. A general article on some aspect of steel, summarized in a published abstract, may seem to have no interest for the maker of high-speed or magnet alloy steels, for example. The efficient information officer, however, scanning this article in its original form, may discern a few brief paragraphs which give information of value concerning either or both of these types of steel, yet are in themselves too insignificant, perhaps, to figure in the printed abstract. Printed abstracts must necessarily cover the widest possible field, and cannot include every passing allusion.

SIMONS : AN INFORMATION OFFICER

It will pay the information officer to examine the articles contained in the most significant journals and publications, and make his own abstracts, to supplement the published abstracts. Busy technical men and research workers give more attention to a regular bulletin of abstracts prepared by a member of their own organization than they give to printed general abstracts, because (a) they know they have been specially picked out as valuable by someone familiar with their own particular field ; and (b) they are relieved of the necessity of wading through a large number of printed abstracts of no interest to *them* (though they may be of interest to other industries). It is always advantageous to circulate, therefore, a regular internal bulletin of abstracts, which may be either daily, weekly or monthly, according to the particular conditions. These abstracts should be given letters and numbers for reference, and I have found it an advantage to incorporate in the bulletin a detachable request form enabling any particular reader to apply to the information service for the originals of particular abstracts. All he has to do is to sign his name and make a list on the form provided of the numbers relating to the originals he requires.

In most industries the work of overseas specialists needs to be watched, and for this reason abstracts may have to be made from foreign technical and scientific journals. For this reason the information officer should understand French and German sufficiently well to be able to make competent technical translations from these languages when necessary, either as abstracts or as full-scale reproductions of the papers in question. This does not mean that French and German are the only languages in which scientific information of value is published, but it is asking too much to expect the information officer to know Italian, Spanish and Russian as well.

I have been careful to suggest that the information officer need not be a librarian, because in many works it is the information officer who first establishes the necessity for a works library, and if he is doing his job properly, he should have little time in which to run an efficient library, though it should, at all events, be under his direct supervision. He should, in my view, have control of the librarian as regards discipline, total expenditure, engagement of staff, etc., and of all other incidental services. This means that he should be provided with some type of duplicating machine for the preparation of his abstract bulletins, adequate filing cabinets for card indexes and other forms of quick reference, and a typist under his control to whom he can dictate, if he has the necessary fluency, such material as does not need to be carefully written out by hand. He may also need, according to the exigencies and scope of his job, photographic apparatus for making copies of charts, diagrams, illustrations, etc., in books and technical journals, but in this respect he must bear in mind the question of copyright. He must not, for example, sell any of these reproductions or print them in a journal intended for public consumption, even though that public be only the readers, if any, of his company's works magazine.

As I have said, it would be possible to write a long thesis on each one.

of the information officer's potential activities, but here I am concerned to outline for the benefit of beginners the sphere in which he operates, rather than the detailed methods of carrying out this work.

It will be seen from what I have said that the functions of the information officer are two-fold. In the first place he gives out information, as the worker-ant gives out food to the warrior-ant when food is requested of him. Secondly, he receives information, digests and voluntarily presents it, in the hope that it will be of service. In this latter connection he must be quick to separate the essential from the unessential. For example, the works manager of an electrical instrument firm does not need to be told that there are such things as columnar crystal magnets; but he will be interested to know that it has proved possible to reduce the size of, for example, electric meters by using in them magnets of this type possessing such and such properties. The rule we have in advertising applies just as closely in information work. That rule is: Be specific! Vague generalities in information merely bring the information service into disrepute. When he receives a query the information officer should not reply in general terms. If, for instance, he is asked: Is there any other method of repairing a broken high-speed steel tool than by brazing it, he should not merely say: 'Yes, there is atomic hydrogen welding'. He should give a brief outline of the atomic hydrogen process, with its advantages and disadvantages; state, if he can, what firms are using the process for this particular class of work; and indicate various references which can be consulted if required. It is factual data of this kind that impress the scientific or industrial worker with the value of the service.

Here I must pause to touch upon two points of major importance. (1) The method of presentation and (2) the material presented. The method of presentation, particularly of the abstract bulletin, should aim at maximum legibility, orderliness of arrangement, ease of reference and maximum of information. If the abstract bulletin is to be printed, legibility is largely a matter for discussion with the printer, unless the information officer is himself an expert in typography. If it is duplicated by one or other of the many efficient duplicating machines now on the market, the typing of the stencils should be carried out by a competent and careful typist, and not be entrusted to a junior merely learning her job.

The abstracts should be set out, in my view, on the following lines. (1) Key letter and reference number set well in the left-hand margin. (2) Title of the article. (3) Author, publication date and page number. All these should as far as possible be included in one or two lines running on, with the title underlined. Two linear spaces should then be left and the actual abstract reproduced.

I have found it a good plan to underline the key words in any abstract, so that the eye of the reader falls upon them, and he can tell at a glance if the subject is of interest to him. For example, if the abstract deals with helical springs in crushing machinery, the words *helical springs* and *crushing machinery* should be underlined; if it deals with the use of boron

SIMONS : AN INFORMATION OFFICER

in nickel steels, the words *boron* and *nickel steels* should be underlined.

While it is an advantage to compress the abstract to the bare minimum, excessive abbreviation is, in my view, to be avoided, for various reasons. In the first place, it often happens that what seems a reasonable and familiar abbreviation to the information officer does not seem reasonable and is not familiar to the reader.

Secondly, the abbreviations of one industry may conflict with the abbreviations belonging to another, and cause confusion. For example, a chief electrical engineer reading an article in which the abbreviation 'h.f.' occurs will assume that that abbreviation stands for high-frequency, whereas the welding engineer may assume it to stand for hard-facing. This is an imaginary instance, which I have invented simply to illustrate my point. It does not always follow, you see, that the man who reads the abstract is fully familiar with the abbreviations of the industry that employs him. If he is the works electrical engineer he will be more familiar with electrical abbreviations than with metallurgical, and so forth.

Thirdly, too many abbreviations make an abstract difficult to read, and not only this, but they make it *seem less readable*. There is also the drawback that the quick or impatient reader, skimming through an abstract, is liable to overlook them in his haste and so form a wrong impression. Readability is essential in abstracting, and much should be sacrificed to it. An abstract that looks unreadable, or that in effect no one reads, is useless, and has failed to fulfil its purpose, however admirably, efficiently and accurately it may have been compiled. Do, therefore, not ignore this fact that the *readable and readable-looking* abstract is the *better* abstract !

We now go the other point I mentioned, namely, the material presented, and here I must allow my King Charles's head to rise above the hedge, if only for a few moments. I am inclined to assert that the writing of good English is the most important of all the information officer's qualifications. I read through many abstracts in the course of a year, relating to many different industries, and I confess I am often shocked and horrified by their slovenliness of phrasing. I can forgive redundancy ; I can forgive the frequent use of superfluous words ; I can forgive slipshod punctuation and eccentric teutonic habits, such as that of putting every noun in capital letters, but I cannot forgive bad grammar and bad phraseology.

Clear writing is clear thinking, and if a man writes a muddled sentence it is fundamentally because he has a muddled mind, or at least his mind at the moment of writing is in a muddle.

There is one aspect of the information officer's job that I have not yet touched upon, and that is the importance of making his service known, and ensuring that it is used. I take it for granted that the information officer will be sufficiently personable and acquainted with the rudiments of his job to be able to keep on good terms with his colleagues ; but he must do more than this. He must actively interest them in the work of the information service. This means he must acquaint them, preferably by a short, well-written document, with what he can do for them.

I myself would set out this in the form of a questionnaire, something after this fashion. (1) Do you spend a lot of time hunting for a little bit of information that is not handy? (2) Do you ever want a further sight of some article in a technical journal that has passed out of your hands or to which we do not subscribe? (3) Do you ever have to study a particular subject from A to Z and want to get hold of the books or information quickly? (4) Would you like to be kept acquainted with all the latest developments in your own particular field? (5) Do you ever want a copy of a photograph or chart in a technical journal or book? (6) Do you give any lectures? If so, do you ever want facts from other industries or sources that would help you to illustrate your lectures?

One could, and sometimes does, go on and multiply these questions, but at the end of them I would write: 'If so, dial number so and so on your works telephone, and tell me what you want. I guarantee to get it for you quicker than you can get it for yourself.' This will arouse interest and, let us face the fact, result very often in waggery. I have had people ring up and ask me where they can get glass hammers for knocking in coffin nails or what they were to do with a broken buffer casting from such and such a works. If you know me, you will quickly realize that my replies were short, to the point and extremely practical. These misplaced frivolities, however, do not matter. They are a sign of interest, and as such you should regard them.

Sooner or later one or other of the jokers will put your service to the test, and that is the important thing. You have made him aware that the service exists. Your fate will then depend on the efficiency with which you cope with his requirements, and in this I cannot help you. The great thing is to be quick and accurate, patient and comprehending. You must not be afraid to put on your hat and go half a mile to see the man concerned, so as to find out exactly what it is he wants. You must not be afraid to go to the public library yourself with an attaché case in your hand, and carry away a dozen heavy books if they will help you to satisfy the user of the service some hours quicker than would otherwise have been the case. You must not be afraid to ask anyone on earth who you think has the information you want, as long as you do it politely. Pertinacity is one of the greatest assets the information officer can possess, and, if he really knows his job, he will find that the tracking down of a piece of rare information can be as exciting as the pursuit of a clue to the murderer in a 'whodunit'.

You will notice that I have taken great care not to make more than a passing mention of classification. Some classification system there must be, especially in the library, but I will go so far as to say that the information officer need not pay half so much attention to this aspect of his work as some people would like him to. I have never yet, on enquiring for a piece of information, been asked to quote a U.D.C. or any other number, and the burden of my remarks is that as long as you get what you want, the method by which some other person obtains it and presents it to you is immaterial.

You will observe carefully that I am excluding from this statement any

SIMONS : AN INFORMATION OFFICER

information officer who has at the same time to be an efficient librarian. As regards the information that the officer collects for his own reference and use, I suggest that the simplest system of classification is for him the best. It is fatally easy to get so absorbed in classification systems that one spends far more time in keeping the system up than in actually using it and making it do its work.

I want now to make a point about abstracting, and that is that, here again, far too much time can be wasted if the information officer is not careful. One should not abstract with any idea of *totality*. Much that is written in technical journals is merely repetition of what has been previously published ; much of it is not by authoritative writers ; and much is based on exaggerated claims not afterwards justified in practice. Such material ought not to be abstracted. It is not, of course, possible for the information officer to know in each instance whether an article or paper is authentic or otherwise, but sometimes he can tell from the journal and its character ; sometimes from the author or the wording of the article ; and sometimes from having read the previously published material on the same subject.

Here is another point ! I am continually reading abstracts which begin 'The author deals with various types of stainless steels, discusses their applications, treatment, manipulation, etc.'. Now an abstract like this tells the interested reader nothing. Authors in the technical journals have been discussing stainless steels and their applications since stainless steel was first invented. Merely to tell the reader that another of these articles has appeared is silly. The thing the reader wants to know is : Does the review of these steels contain anything new, such as descriptions of new steels, new applications, new methods of treatment or manipulation ? If so, then these are the things that should be summarized and abstracted, and not the mere generalities. In abstracting such an article as I have outlined, the information officer should begin something like this : 'Stainless steels : A general survey—the only new fact is that a special type of wheel has been developed for buffing stainless steels. Details of the results obtained are given.' Acres of type and paper would be saved if these principles were adopted.

I know that to those of you new to your jobs, my suggestion of more stringent abstracting will present many problems. The subject is one that lends itself to discussion and controversy, and possibly at the close of this paper you will feel it necessary to criticize my views on this important matter. I hope you do, but I shall maintain that abstracts can be better and shorter and certainly better written.

It was made clear to me when I was first invited to address you that this paper was to be written, as far as possible, for relative newcomers to the profession, and I have throughout had this point of view carefully in mind in preparing it. Those of you who have been information officers for a considerable period will doubtless have found much of what I have said elementary to a degree, and provocative to the height of my desires, but I have explained the reason for this and I can only hope that you will forgive me.

MEMBERS' FORUM
AND
REPORTS FROM KINDRED ORGANIZATIONS

OPERATIONAL RESEARCH ON THE AUTHOR CATALOGUE

By J. B. REED, B.Sc., F.R.I.C.

Technical Administrative Officer, British Coal Utilisation Research Association

(Section omitted, for lack of space, from the paper "Planning for the user" published in *Aslib Proceedings*, Vol. 3, No. 4.)

PROBABLY the least popular of all library tools are the catalogues and indexes—and yet they are easily the most important. Any legitimate complaint against the form or condition of these is quite a major challenge to all who seek to help the user. One common complaint by the user is that in many cases they are abominably labelled. An example of thoroughly bad labelling is given in Fig. 1. I have to confess that these were the indications on the drawers of the author catalogue in my own library some few months ago.

There are at least three serious defects: the first letters are on an equality with the second, therefore they do not stand out and are not quickly located; on many drawers the range of contents is not indicated with precision—e.g. an index card bearing BIC . . . might be found in any one of three drawers marked respectively B-BI, BI and BI-BR; and the first letters Q, V, X and Y are not indicated at all.

It is useful to remember, whenever using the alphabetical series, that it is a purely arbitrary one. We frequently need to group letters, and we indicate the group as a range—e.g. A-D. To the alphabetically minded (and most professional librarians are this, although most other folk are certainly not) this leads to no difficulty. But to other folk it hides letters—often quite seriously. The London Telephone Directory is issued in four volumes marked A-D, E-K, L-R, S-Z, and most London subscribers pick the wrong volume at first go! In contrast to the alphabet, a series of numbers is a scale of magnitudes, and since most of us are acutely magnitude-conscious we have little difficulty in choosing quickly from a number of ranges the one containing a desired number. Letters are far more easily hidden than numbers.

The moral, I suggest, is that whenever we use alphabetical indications we should try to show the whole alphabet. With sets of over thirty index drawers this is usually at least 80 per cent practicable so far as first letters in the index are concerned, but we cannot do anything about the second letters.

Three guiding principles to be commended in marking index drawers are: firstly, that *all* first letters are shown; secondly, that when second letters are used, they appear in *lower case*; and thirdly, that drawers bear *precise* indications of the limits of their contents. We endeavoured to apply these principles in the scheme shown in Fig. 2.

You will notice certain special indications, for example, B.S.L., GOVT.,

A-AM	AM-AZ	B-BI	BI	BI-BR	BR-BZ	CA-CH	CI-CZ
D-DU	E-FA	FA-FR	FR-GM	GO-GR	GR-HI	HI-IM	IN
IN-JO	JO-KO	KR-LY	(Empty)	(Empty)	M-MI	MO-NU	O-PL
PO-RI	RO-SC	SE-ST	ST-SZ	T-TY	U-US	US-WE	WH-Z

Fig. 1

A <i>a-m</i>	A <i>n-z</i>	B B.S.I.	B <i>a-b</i>	B <i>i-p</i>	B <i>q-z</i>	C <i>a-b</i>	C <i>i-z</i>
D	E F <i>a-c</i>	F <i>f-z</i>	G GOVT.	G <i>a-z</i>	H <i>a-m</i>	H <i>n-z</i>	I <i>Inst.</i>
I <i>Instn.</i>	I J <i>a-z</i>	K L <i>a-b</i>	L M <i>i-z a-b</i>	M N <i>i-z</i>	O P <i>a-g</i>	P Q <i>b-z</i>	R <i>a-o</i>
R S <i>p-z a-g</i>	S <i>b-s</i>	S <i>t-z</i>	T	U U.S.A.	U V	W <i>a-b</i>	W X <i>i-z Y Z</i>

Fig. 2

etc. These relate to large blocks of cards in our system, which, in each case, would be isolated in a drawer immediately preceding that, or those, containing the remaining cards of the same first letters, namely B, G, etc.

Before committing ourselves to this new scheme we made a test. Twelve people chosen at random were each timed in finding a chosen two-letter combination on Fig. 1 and then on 2. This was done for six such combinations, and the results were very interesting. The sum of the six times for 1 and for 2 averaged, amongst the twelve victims, 16.8 and 10.2 seconds, respectively. The times achieved by the library assistant were outstandingly the best at 6.0 and 5.8 seconds respectively—demonstrating (a) that she was exceptionally alphabetically minded and (b) that, in consequence, the modified system had no advantage for her. The four worst cases, however, averaged 23.7 and 11.4 seconds, proving that the second system was of considerable advantage to these. One other interesting point arose with the two-letter combination QU. You will recall that Q was one of four letters not directly indicated on 1. The average time taken to find QU on 1 was 5 seconds, the worst being nearly 9; on 2 it was 2 seconds. This seems to bear out the point that hidden letters cause difficulty. I should make the point here that time-saving was not the principal end in view in these experiments: time

REED : THE AUTHOR CATALOGUE

differences were taken as indices of difficulty differences : the object was to eliminate waste of the users' nervous energy ! Following these tests we adopted Fig. 2 as the scheme of indicating the drawers of our author catalogue.

SETTING UP A TRANSLATIONS INDEX

By JOHN G. F. BELLAMY

Index of Unpublished Translations, Aslib.

TRANSLATIONS of foreign technical papers are an important source of knowledge and it is natural that the idea of providing a key to this knowledge should be associated with Aslib. Such a key, in the form of an index to translations, had often been discussed since 1925, but it was not until after the Aslib Conference of 1942 that action was taken. A year later, an *Aslib Memoranda* and afterwards a questionnaire were sent to members asking for their views on the proposal to establish an index and inviting their co-operation in building it up. The result was encouraging and cards containing bibliographical details of translations began to arrive at the Aslib office. The index was small and grew slowly, but it was the nucleus for the later and more ambitious scheme.

At the British Commonwealth Scientific Official Conference of 1946 it was recommended that an index of English translations of scientific papers should be held in each Commonwealth country. It was further recommended at the Royal Society Scientific Information Conference in 1948 that this index should provide a service comparable to that supplied by the Index of Technical Translations, maintained by the Special Libraries Association in America. This recommendation provided the impulse for the present index, and in 1949 the D.S.I.R. invited Aslib to act as the United Kingdom agent for a Commonwealth Index of Translations. However, the change of Aslib's address delayed matters so that it was not until early in 1951 that a full-time member of the Aslib staff started work on the scheme. In the early stages, at least, Aslib is to run the scheme under contract to the D.S.I.R. It is interesting to note here the various stages through which a project of this kind passes between the genesis of the original idea and its translation into action.

The plan adopted for building up the index was that Aslib should gather in information about translations from all sources, arrange this material in an agreed form and send it, by way of the British Commonwealth Scientific Office, to H.M.S.O., where it would be placed on 5 in. by 3 in. cards. Copies would be made so that each Commonwealth country taking part in the scheme would receive two copies of every card. Since it was hoped to establish agents in the Commonwealth who would send details of translations held in their own countries to the B.C.S.O. (London), in the same way as Aslib was doing in the case of the United Kingdom, identical indexes would be set up in each country representing the total holdings of English translations in the Commonwealth. This plan has worked, and is working, extremely well.

As a first step, Aslib publicized the Index in the appropriate periodicals and also sent a circular letter to all its United Kingdom members informing them about the Index and inviting their co-operation in building it up. At the same time, the original Translations Index, begun on Aslib's

BELLAMY: A TRANSLATIONS INDEX

own initiative in 1943, was incorporated into the larger scheme. The response from Aslib members was most generous and lists of translation holdings began to arrive daily at the Aslib office. These were now recorded at the rate of 400, and later 500, a week. The details asked for and supplied were: the name of the author of the original paper; the title of the paper in English and also, when possible, in the original language; the journal in which the paper appeared and the date, volume number, part number, and the first and last pages of the journal; the location of the translation; whether the translation was complete and the form in which it was held. The Index was built up on an entirely co-operative basis and the success Aslib has had in establishing it is largely due to the helpfulness and generosity of Aslib members and others.

By December, 1951, some 3,600 translations were recorded on cards in the Aslib office, 225 enquiries for translations had been received, for which only 9 locations had been provided. For comparison, these figures are tabulated below with the corresponding ones for the Index maintained by the Translations Committee of the Special Libraries Association in America. This was the Index to which the Royal Society Conference had drawn attention in 1948.

	Aslib	S.L.A.
Number of requests for translations.. ..	225	910
Locations provided	9	30
Negative answers	216	880
Number of translations listed	3,600	14,000
	(approximately)	

In spite of the fact that the cards for the Aslib Index only began to arrive in May, 1951, and the Index is, at the moment, far smaller than that maintained by the S.L.A., the two sets of figures bear a striking relationship to each other. The proportion of requests for translations to the number of translations listed, 225 : 3,600 and 910 : 14,000, is approximately the same in each case, 1 : 16. Of these requests, Aslib was able to satisfy 9 in 225 queries, or 1 in 25, with a positive answer, and the S.L.A., 30 in 910, or 1 in 30. It seems as if these proportions hold good whether a translations index is large or small.

If the above figures seem discouraging it must be remembered that a negative answer to an enquiry for a translation does at least give the information that a translation has not yet been made, and the firm or organization concerned can then go ahead and make one for itself, confident that unnecessary work or expense are not involved. A fact which has emerged in the course of the year is that most enquiries are for translations of papers which appeared, not in the current year as might be expected, but in the year before. Thus, most of the enquiries were for translations of papers that had appeared in 1950.

From the experience gained in this, the first year, it is clear that the Aslib Index provides valuable information, but only a fraction of the information required. Two approaches to this situation are possible: the amount of information contained in the index must be increased and

what information there is must be more widely known. The size of the Index is increasing all the time, but after the accumulated arrears of translations are listed by the end of December, 1951, the rate of increase will inevitably grow less. The second approach would take the form of publishing translation lists based on the needs of enquirers, and the lessons learnt in 1951. Thus, not only would Aslib act as a depository of information but would actively present selected material to all who needed it. It is hoped that this approach will make an important source of information more readily available in 1952.

MICROFILMS FOR THE DISABLED

BY SIR JOHN FORSDYKE, K.C.B.

Chairman, Microfilms for the Disabled Association, Ltd.

AT THE Conference in September, 1945, Mrs. Moholy, as Director of the Aslib Microfilm Service, gave an account of the American 'ceiling' projector which was then newly designed for the purpose of enabling persons who are paralyzed, or otherwise so disabled that they cannot handle books, to read by means of microfilm.¹ That instrument was devised by Mr. Eugene B. Power, of Ann Arbor, Michigan, and was produced by the Argus Corporation, of Ann Arbor. It differs from film-strip projectors in using standard reels of microfilm, like a library reader, and is mechanized in the sense that the reel-spindles are rotated by electric motors, which are operated by remote control. By pressing a button of the control switch the reader, who is usually lying in bed, moves the film forwards or backwards, and the image of the pages in each successive frame is thrown on the ceiling. The Argus instrument is built to project vertically. It cannot be stood on its side or tilted, but a mirror can be attached to the lens for horizontal projection.

When Mrs. Moholy described this new application of microfilm it was expected that the American projector would be available in this country, but restrictions of dollar expenditure have made its importation impracticable. Meanwhile, an organization, of which the plan was mentioned by Mrs. Moholy, was incorporated in 1946, with the name of the Microfilms for the Disabled Association, for the purpose of producing microfilms for this special use. Its model was Projected Books Incorporated, which had been organized by Mr. Power and others in the United States. The Association was financed by a liberal grant from the Pilgrim Trust, and received the support of the Society of Authors and the Publishers Association in its project of reproducing copyright books for sale or loan under medical certificate. The Trustees of the British Museum have generously provided office accommodation and technical facilities which could hardly have been obtained elsewhere.

Since the only projectors in use in England are a few that have been given by American friends to the British Red Cross Society and similar bodies, the work of the Association in supplying microfilms has so far been slight. But we tried from the beginning to get a similar projector produced in this country, without success so far as the commercial manufacturers were concerned. This has, however, now been done successfully from designs made, as a personal venture, by Mr. W. G. J. Vaughan. His 'Pilgrim' projector is being produced by Visual Communications, Ltd.

The performance of the Pilgrim is an improvement upon its American prototype in that it operates in any position; that is to say, it throws the image horizontally or at an upward or downward inclination, as well as

¹ *Report of Proceedings of the Twentieth (Aslib) Conference, 1945: pp. 82-3.*

vertically, when that is needed. The ceiling is not a place that one would choose for reading, and not all ceilings are low enough or level enough or white enough to receive the image of a printed page. The normal use of the Pilgrim by a person lying or reclining in bed or in a chair is by projection from behind the bed or chair to a small screen placed at a convenient distance and inclination in front of the person. Mr. Vaughn gave particular attention to the problem of light without heat, and has practically eliminated heat by adopting a 12-volt, silvered lamp of only 24 watts. Its light output is ample for easy reading in daylight. The low-powered lamp also avoids the noise which is inevitable with cooling mechanism.

Another merit of the Pilgrim is that it is an all-purpose instrument; that is to say, although it was designed primarily for disabled readers, it is equally well adapted for library and students' use. The normal projection of the image for a reclining person is upwards, to a screen placed where the reader would hold a book if he were able to do so. For a reader seated at a table the projection is downwards, from above the reader's shoulder to a screen placed on an inclined book-rest on the table. This leaves the front of the table free for writing or copying or collating, and the remote mechanical control obviates the tiresome interruption of turning round or reaching forward to turn a handle. As long as the appropriate button is pressed the film runs forwards or backwards. It is, therefore, easy to turn to any page of the book or manuscript. The re-wind to the storage reel is automatic. This process is manifestly the ideal one for searching newspapers or index files.

The therapeutic value of this application of microfilm is obvious. Not less important is its educational use. The controls are easily manipulated by young children long before the reading age, and picture-books for infants are already in the nucleus library which the Association has formed. Not less than a quarter of the library will be for children. The Association is indebted to Mr. F. Seymour Smith for a select list of books for general reading, and to Miss Kathleen Lines for a selection of children's books. Purely educational books will be produced as the demand for them arises.

It was the first intention of the Association to produce its microfilms for sale on non-commercial terms, as has been done on a very large scale by the corresponding body in America. But it has become evident that few persons or institutions who acquire projectors here will want to possess books in microfilm form. The users are more likely to be borrowers, and the Association has, therefore, instituted a loan service, which is already operating on a small scale and will increase largely when the medical and educational effects of the new instrument become known.

THE NATIONAL CENTRAL LIBRARY

By J. W. THIRSK, F.L.A.

National Central Library

THE Thirty-fifth Annual Report of the Executive Committee of the National Central Library for the year ending 28th February, 1951, is of particular interest this year, in that it devotes some space to a history of the benefactions of the Carnegie United Kingdom Trust from the foundation of the library. Since 1948-9 the Trust had been gradually withdrawing its financial support, on the grounds that the library is now a national institution, and that its achievements justify support from national and local public funds. The year under review marks the final grant from the Trust. Apart from the gift of the Malet Place headquarters building, which cost £50,000 in 1933, the Trust has, since 1916, made direct grants to the library of £112,861. If all the benefactions of the Trust, including grants to the regional library systems and to outlier libraries, are taken into account, a total sum of £293,784 has been provided. The committee acknowledges 'the far-seeing, vital contribution the Trustees have made'.

In the previous Annual Report it was recorded that the Treasury, in increasing the grant-in-aid for that year from £19,000 to £22,500, had expressed the view that users of the library should also be expected to contribute to its increased costs. The Executive Committee, therefore, launched an appeal at the beginning of 1950 to co-operating libraries of all types, and as a result the sum of £1,412, representing new or increased financial contributions, had been subscribed by 28th February, 1951. The Treasury grant was increased from £22,500 to £25,000.

The total number of books in the library increased this year to 127,782, a figure which is still far below the total of 176,961 in 1941, before the fire had destroyed more than 100,000 books. In spite of this severe depletion of the book-stock, it is noteworthy that this year about 21 per cent of all the applications received were satisfied from the library's own shelves. The percentage of applications satisfied after all resources had been tried was 65.3 per cent. This year there was again a big increase in the number of applications received, from 87,931 last year, to 92,740 this year.

In addition to the applications for the loan of books and periodicals, several hundreds of letters of enquiry about books are received yearly, from individuals and libraries in this country and abroad, and a large number of 'subject requests' is also dealt with. When possible, such enquiries are answered by the staff from the library's own collection of bibliographies. The answers to more difficult enquiries are found by research in the reading room of the British Museum, or by reference to the librarians of outlier libraries, who give much valuable assistance. It is important for the staff to know the resources of the outlier and other co-operating libraries, and for this purpose a classified list of these

libraries is maintained. Guides to sources of information are also provided by a 'libraries file' and an 'information file'.

Again the Committee reports a very large increase in the number of books lent to foreign libraries, and in the number of books borrowed from abroad. In the past two years the number of books in both categories has more than doubled, and the present figures are : lent abroad, 1,587; borrowed from abroad, 584. These figures include numerous requests for photo-copies and microfilms, and the library also obtains from abroad photo-copies and microfilms required by British libraries.

Work on the Union Catalogue of German war-time material and on the Russian Union Catalogue continues, and good progress is reported. The staff of the German Union Catalogue, having completed the periodical section of the catalogue, had by 28th February, 1951, catalogued about 9,000 books. The Russian Union Catalogue now records 26,447 books, 1,683 periodicals, and 91 newspapers. Both these catalogues are proving their value, and are well worth the money that has been expended on them. The production of union catalogues of books in other languages may well be worthy of consideration in the future.

After many delays, work on the reconstruction and repair of the war-damaged building commenced in October, 1950, and this work is now (January, 1952) nearing completion. The report draws attention to the exceptional calls which have been made on the staff during the year, and pays tribute to their excellent work under very trying conditions.

With the end of the financial support of the Carnegie United Kingdom Trust, a turning-point in the history of the library is reached, and from now on, it is clear that the greater part of the income of the library will be the grant-in-aid from the Treasury. Three of the most urgent tasks, which are at present being performed inadequately because of insufficient staff, are mentioned in the report. These are : to bring up to date the *National Union Catalogue*, by incorporating nearly a quarter of a million entries; to extend the *Outlier Union Catalogue*, which at present records a very small proportion of the total holdings of the outlier libraries; and to develop the outlier system. In their application to the Treasury for increased funds for the year 1951-2, the Trustees of the library placed emphasis on these urgent tasks, and the Council of Aslib, in view of the recommendations contained in the report of the Technical Information Services Panel of the Committee on Industrial Productivity, strongly supported the library's application. Unfortunately, owing to the demands of rearmament, the Treasury was unable to provide the extra funds required.

To avoid a serious reduction in the efficiency of the National Central Library, it is essential that the library should have more funds. The demands on the library increase year by year, and it is vital that its finances be sufficient, not merely to provide an adequate staff to cope with the everyday services, but also to provide additional staff for the purpose of extending the resources of the library, and for developing long-term plans, which would ensure the success of interlending and library co-operation in the future.

INTERNATIONAL FEDERATION FOR DOCUMENTATION

GENERAL REVIEW OF F.I.D. WORK DURING 1950-51

(Translated and summarized from *F.I.D. Informations*, vol. 1, nos. 7 and 8, October and November, 1951, pp. 35-9, by G. A. Lloyd, British Standards Institution.)

GENERALLY speaking, F.I.D. activities have increased proportionately with membership, but, unfortunately, the finances have not kept pace with this progress.

National members now number twenty with the recent adherence of the Japanese National Committee for U.D.C. (Science Council of Japan), the Spanish Instituto nacional de Racionalización del Trabajo, and the Yugoslav Savezna uprava za Unapredenje Proizvodje. It is hoped that the name of the appropriate Indian Committee will be added during the next year.

Corresponding members now exist in about ten or a dozen different countries; recent additions being Austria, Egypt, Greece, and the Belgian Congo. Relations with South American countries are also growing stronger, especially with Argentine and Uruguay. Total membership, associated and corresponding, is forty-eight.

Decentralization of F.I.D. organization is being steadily increased, somewhat on the same lines as in the International Organization for Standardization (ISO), whose national members share out the secretarial duties for the various technical committees, though with less satisfactory results, owing to financial difficulties both of the F.I.D. itself and of many of its national members.

The problem of finance is daily becoming more acute, with administrative costs rising far more rapidly than subscriptions to the F.I.D. One special problem is the number of documentary services now offered to non-member countries, especially the less developed countries, for which no payment is received. For the rest, it remains a source of embarrassment that the F.I.D. possesses virtually no financial reserves of any sort, or any working capital.

The staff at The Hague office consists at present of the full-time organizer, Mr. W. van der Bruggen, and two full-time secretary-typists, with one half-time typist and occasional services from members of NIDER and NIVE, and some assistance from the Netherlands Patent Office. In Brussels, there is also a half-time assistant to M. Lorphèvre (of the Association Belge de Documentation), who is now the editor of the F.I.D. *Review of Documentation* and *F.I.D. Informations*.

F.I.D. publications, apart from the *Review of Documentation* (eight issues in 1950, four in 1951), which included several of the Rome Conference papers, were augmented by two new periodical ones: the *F.I.D. Informations*—a monthly bulletin of up-to-the-minute news items and short reports; and the important new *Extensions and Corrections to the U.D.C.*,

more information about which is given under the section dealing with U.D.C. developments.

Of the non-periodical publications, a first *Directory of microfilm and photocopying services*, prepared by W. van der Bruggen—and Mme Kaan—seems to indicate that it will have to be kept up to date in the form of a cumulative list. Another article, *Microcopy on flat film*, by van der Wolk and Tonnon, has been reprinted from the F.I.D. *Review of Documentation* as a separate document.

The second part of the *Index bibliographicus* (a list of periodicals containing abstracts, of which Unesco has issued the first part, dealing with science, pure and applied) covers the field of the social sciences and the humanities generally, and is nearing completion in the capable hands of Mr. Theodore Besterman.

Two useful publicity pamphlets have been prepared by Mr. van der Bruggen and published by the F.I.D. for free distribution :

'It's *your* Federation' (a general explanation of the F.I.D. and its work, its aims and various services) ;

'A universal index to knowledge—the Universal Decimal Classification' (a useful general introduction for novices).

A list of U.D.C. users is now in preparation, and a first draft already issued. A bibliography of lists of periodicals is also in preparation, and material is being gathered for a guide to documentation methods (photographic, mechanical, etc.).

COMMITTEES, SECRETARIATS AND SIMILAR BODIES

Until the Rome Conference, the Council was composed as follows :

President : Mr. C. le Maistre, C.B.E. (United Kingdom).

Vice-Presidents : Dr. Bourgeois (Switzerland), M. J. Cain (France), Dr. C. David (U.S.A.), and Dr. O. Pinto (Italy).

General Secretary : Ir. F. Donker Duyvis.

Treasurer : Mr. Arne Møller (Denmark).

In addition to Mr. le Maistre as President, and Dr. Bourgeois as senior Vice-President, the Committee of Action (Executive Committee) consisted of Mme S. Briet (France), M. Georges Lorphèvre (Belgium) and Dr. H. Coblans (South Africa), as well as the Treasurer and Secretary as *ex-officio* members.

At the Council meeting held during the Rome Conference, the following were nominated officers :

President : Mr. Arne Møller (Denmark).

Vice-Presidents : Mme S. Briet (France), Mlle Dr. O. Pinto (Italy), Dr. Luther Evans (U.S.A.), M. G. Lorphèvre (Belgium), and Dr. J. Meyer (Switzerland).

General Secretary : Ir. F. Donker Duyvis.

Treasurer : A member from the U.S.A.

Mr. C. le Maistre, retiring President, was nominated Honorary President. To the new Committee of Action, in addition to the President and the Secretary and Treasurer as *ex-officio* members, were elected : Mlle Dr.

F.I.D. ACTIVITIES

O. Pinto and Dr. J. Meyer (as Vice-Presidents), Professor Velander (Sweden), and a Spanish member, it being understood that Dr. Coblans had tendered his resignation, because his return to South Africa made it difficult for him to carry out the duties of attending meetings, etc.

A special Reorganization Committee was appointed to go into the whole question of the statutes, finances and administration of the F.I.D., and to make a general report to the next Council meeting, to be held probably in Copenhagen in late 1952. This special committee was asked to take over the functions of the Committee of Action until the Copenhagen meeting of Council. In addition to the F.I.D. officers and members of the Committee of Action already mentioned, M. J. Cain (France), Dr. A. King (from, but not representing, the U.K.) and a representative from the Netherlands (this being the seat of the F.I.D. secretariat) were co-opted. Mr. le Maistre, Honorary President, was also asked to serve on the Reorganization Committee and an invitation was sent to Dr. P. Bourgeois, President of the International Federation of Library Associations.

F.I.D. ACTIVITIES IN SPECIAL FIELDS

Universal Decimal Classification. By far the most important development has been the launching of the new *Extensions and Corrections to the U.D.C.*, issued half-yearly, and cumulating for seven issues in a series, after which a new series begins. Subscription to these, though double that for the still issued P.E. notes, is likely to prove a real economy in time and labour saving, since they include all extensions and modifications to which no objections have been made, arranged in U.D.C. order. Taken in conjunction with the available published tables (in French, German and English) and the valuable German *Ergänzungen*, just published as F.I.D. Publication No. 250 and including all extensions to the third German edition up to the end of 1949, these usefully collect all modifications since July, 1950, into a single cumulative list, leaving a small gap for January-June, 1950, which it is hoped very shortly to make good.

Apart from the *Ergänzungen*, the publication of the 4. Lieferung (Abteilung 6/61 Angewandte Wissenschaften und Medizin) has now completed the tables of the third international edition (German), of which the alphabetical subject index is in course of preparation.

Of the fifth edition (French), sections 0 and 2 have been issued, with modifications since the 1934 German edition included.

No further tables have been published of the fourth edition in English (British Standards Institution), but alphabetical indexes have now been published at 3s. 6d. for BS.1000, Vol. 2, Parts 2 (Chemistry) and 3 (Geological and Biological Sciences). The main reason for delay has been the difficulty of getting final agreement on the Rubber/Plastics section 678 and the Medical section 61, but these are now within sight of final proofing, and it is hoped that they will be published during 1952. Progress with the engineering and chemical industries has been slow but steady, and a number of sections, e.g. 622, 623, 624/628, 666, 677

and 69/72 are nearing the proof stage. Mechanical engineering 621 continues to be troublesome, but the reformation of the earlier F.I.D. Sub-committee may lead to better results. A new B.S.I. panel for U.D.C. 63 Agriculture has just been formed and will shortly have before it the first drafts of section 63.

Comparative classification. The secretariat has been reserved for the new Indian national section as soon as this is formed, when it will be largely in the able hands of Dr. Ranganathan. Its work should be assisted to some extent by the activities of the new U.D.C. Notation Panel recommended for establishment by the Rome Conference. Meanwhile, various studies are being prepared on comparative and general aspects of classification.

Technical documentation methods are now chiefly the concern of the American section (American Documentation Institute—A.D.I.), who have done some considerable preparatory work for Section 2 of the Rome Conference, and in connection with the O.E.E.C. mission for studying technical methods of documentation.

Standardization and terminology problems are the concern of Technical Committee 46 of the International Organization for Standardization, and are, therefore, reviewed separately.

Training in documentation has been studied by a joint F.I.D.-I.F.L.A. Sub-committee under the able guidance of Mme S. Briet, whose first report on the present position of documentalists has been published by Unesco and presented at the Rome Conference.

RELATIONS OF F.I.D. WITH OTHER INTERNATIONAL BODIES

On UNO committees, at meetings concerned with documentation, the F.I.D. representative has been M. J. Cain, Director of the Bibliothèque Nationale.

With UNESCO, the F.I.D. has continued its close collaboration in many different fields, receiving financial aid for the preparation of the *Index bibliographicus* and the *Directory of microfilm and photocopying services*. F.I.D. representatives have attended conferences and meetings of UNESCO as follows:

5th and 6th General Conferences of Unesco (Florence, 1950, and Paris, 1951): Messrs. P. Bourgeois and J. Cain.

Conference of Bibliographical Experts: Messrs. le Maistre and F. Donker Duyvis (Paris, 1950), and also Mr. Arne Møller, in London, 1951.

Conference on Abstracting in Social Sciences: Mr. G. Woledge.

Conference of representatives of non-governmental bodies having consultative status with Unesco (Paris, 1950): M. J. Cain.

At the International Building Documentation Council's 1950 Conference in Paris, the F.I.D. was represented by Messrs. le Maistre, J. Cain and G. Lorphèvre, and it was agreed that the use of the U.D.C. should develop, in co-operation with the F.I.D. and its representatives, whilst

F.I.D. ACTIVITIES

other standardization problems of documentation would be taken up with ISO/TC/46.

Dr. E. Wüster attended the E.C.E. working party on a Machine Tool Vocabulary as an expert on Terminology.

Finally, the F.I.D. was represented on the preparatory committee and at the Congress of the International Association of Music Libraries in Paris (1951), especially on classification problems by M. R. Dubuc.

THE ROME CONFERENCE OF THE F.I.D.¹

The 18th conference of the International Federation for Documentation was held in Rome from 15th to 21st September, 1951. Over three hundred delegates attended, representing thirty countries.

The Conference met in plenary session twice: on the opening day, with the retiring President (Mr. C. le Maistre) in the Chair; and on the closing day, when the Chair was taken by Mr. Arne Møller, newly elected President at the Council meeting on the previous day. The remainder of the time was given over to meetings of the separate sections, some of which held as many as three or four sessions.

SPECIAL SECTIONS OF THE CONFERENCE

The special sections were organized as follows:

1. U.D.C. and its application.

President: Dr. F. Ascarelli.

Rapporteurs: G. A. Lloyd (U.K.) and R. Dubuc (France).

2. Documentary reproduction and mechanical selection.

President: Prof. Dr. A. G. Gallo.

Rapporteurs: Dr. M. O. Lee (U.S.) and P. Poindron (France).

3. Bibliography and abstracting.

President: Prof. Dr. O. Pinto.

Rapporteurs: Dr. J. F. Smith (U.S.) and A. J. Møller (Denmark).

4. Auxiliary publications.

President: Ing. E. Gianni.

Rapporteur: Dr. P. Bourgeois (Switzerland).

5. Training of documentalists.

President: Dr. B. Balbis.

Rapporteur: Mme S. Briet (France).

6. General and comparative classification.

President: Dr. V. Camerani.

Rapporteurs: Dr. R. S. Ranganathan (India) (*absent*) and G. Lorphèvre (Belgium).

7. Linguistic problems and terminology.

President: Dr. V. Camerani.

Rapporteurs: Dr. E. Wüster and S. Frauendorfer (Austria).

Of these, Sections 1, 2 and 3 were perhaps the most active and held three or four two-hour sessions each, but Section 5 had a useful discussion

¹ Extracted, by permission, from the unofficial report by Mr. G. A. Lloyd (British Standards Institution), who acted as rapporteur for Section 1.

on the basis of Mme Briet's valuable report,¹ and Section 7 considered some of the difficult problems which would face Unesco, ISO/TC/37 and other bodies engaged on the compilation of technical glossaries with the coming intensification and concentration of work during the next few years.

Resolutions and recommendations from these various sections were submitted and approved for ratification by the National Committees in a plenary session on the last day of the Conference. The more important decisions taken by the Council were also reported to this meeting.

RELATIONS WITH UNESCO AND OTHER INTERNATIONAL BODIES

At the meeting of the F.I.D. Council held during the Conference, Mr. E. J. Carter, Head of the Libraries Division of Unesco, stated that prior to the meetings of the International Federation of Library Associations (I.F.L.A.) and of the F.I.D., a meeting had been convened by Unesco following others of a similar nature held in Basle and Paris, at which not only the F.I.D. and I.F.L.A., but also the International Council of Archivists and the International Council of Music Librarians were represented. This was held in Rome on 10th and 11th September, and was presided over by Mr. Carter. It was then agreed that a World Conference on Librarianship and Documentation should be held in 1954 and that the organizations represented at this meeting should write to the Director General of Unesco telling him of this agreement and hoping that Unesco would be prepared to place some funds at the disposal of a small committee, which it was suggested should be formed early in 1953, to undertake all the necessary preparations for such a conference. The constitution of this committee was left in abeyance. The conference would embrace the F.I.D., I.F.L.A., the International Council of Archivists, and the International Council of Music Librarians, only recently constituted but very active, and probably also Standardization, at present represented by TC/46 of ISO.

It was also agreed that the F.I.D. would hold a meeting next year (1952) in Copenhagen following the meeting of I.F.L.A., which had accepted the invitation of the Danish Committee to hold their meeting there.

THE U.D.C. AND ITS APPLICATION

(Of the six recommendations made by Section 1, the following is quoted as being of wide interest):

Systematic revision of special fields of the U.D.C.

Recognition of the importance of international co-ordination in the revision of special U.D.C. fields necessitates the following action:

¹ International Federation of Library Associations and Federation Internationale de Documentation. Enquiry concerning the professional education of librarians and documentalists: final report presented by Mme Suzanne Briet, Paris, Unesco, 1951. Pagination various. (Unesco/CUA/2.)

F.I.D. ACTIVITIES

1. Re-establishment on a firmer and more representative basis of the following sub-committees already in existence :

54 and 66. Chemistry and chemical technology.

(*Rapporteur* : Erwin Engel, Forsvarets Forskningsanstalt, Stockholm, Sweden.)

621. Mechanical engineering.

(*Rapporteur* : C. de Novar, Directeur du Centre de Documentation Mécanique, 11 Avenue Hoche, Paris 8e, France.)

2. Immediate establishment of new Sub-committees of the International U.D.C. Committee :

35/36. Public administration and welfare.

(*Rapporteur* : R. Dubuc, 72 rue Saint-Louis, Evreux, France.)

531.7. Measurement and control.

(*Rapporteur* : Panel of NIDER, Willem Witsenplein 6, The Hague, Netherlands.)

614.84. Fire-fighting (with co-operation of ISO/TC/21).

(*Rapporteur* : M. Havelka, Österreichischer Normenausschuss, Vienna, Austria.)

615. Pharmacy.

(*Rapporteur* : Arthur Godefroid, 94 rue van Aa, Brussels, Belgium.)

620.2. Classification of materials.

(*Rapporteur* : Einar Öhman, Jernkontoret Biblioteket, Kungsträdsgardgatan 6, Stockholm, Sweden.)

63. Agriculture.

(*Rapporteur* : M. Tellarini, Techna, Via San Felice 28, Bologna, Italy.)

65 and 3. Commercial science, business management, etc.

(*Rapporteur* : Panel of NIDER, Willem Witsenplein 6, The Hague, Netherlands.)

3. Establishment of further new sub-committees as and when required in the interests of future revision.

If these international sub-committees are to carry out effective work, it is absolutely vital that the names of interested groups or individual experts in the different countries willing to participate should be forwarded to the rapporteurs of the appropriate sub-committees, whose addresses are given in the list above.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

Unofficial report on the meetings of ISO Technical Committee 46 (Documentation), held in Rome, 22nd September, 1951.¹

By G. A. Lloyd, British Standards Institution.

REPRESENTATIVES of the following eleven countries participated:

Austria	Netherlands
Belgium	Portugal
Denmark	Switzerland
Finland	United Kingdom
France	U.S.A.
Italy	

Two observers from Unesco were also present, and the General Secretariat of ISO was represented by M. W. Rambal.

The delegates of the United Kingdom were:

Mr. G. N. J. Beck.

Mr. G. A. Lloyd.

Dr. R. S. Schultze (Documentary Reproduction Sub-committee).

The meeting consisted of two sessions, one in the morning and one in the afternoon and was mainly concerned with reviewing and vetting the progress made since the last meeting held in April, 1950, in Ascona.

Dr. W. A. J. Voorhoeve (head of the Netherlands delegation) was unanimously elected Chairman and opened the meeting with a word of welcome to the delegates, especially the delegate from the U.S.A., present at an ISO/TC/46 meeting for the first time.

The draft agenda was approved, with the proviso that the meeting should first consider the ISO/TC/46 Secretariat's explanatory letter, which invited members to indicate whether they felt that international standards should be as brief as possible, giving only the general rules on the subject concerned and allowing each country to make any national modifications necessary, or give as much detail as possible, leaving the minimum for national variations. In discussion, it was made clear that no clear-cut decision was possible on this matter, and that each particular standard would have to be given expert consideration in this respect, having regard to its general scope and purpose.

It was agreed that it would be impossible, in the short time available, to do more than indicate which documents could be accepted as first draft recommendations and which would have to be referred back as quite unsatisfactory.

Before embarking on a systematic consideration of the working documents presented, however, the Committee considered a letter from the Director of the British Standards Institution asking for a decision regarding

¹ For an earlier survey of standardization activities in the field of documentation, see "Standardization in documentation", *Aslib Proceedings*, Vol. 2, No. 1, pp. 2-6.

ISO MEETING

the position of the U.D.C. number on standards. By way of explanation, it was pointed out by the British delegate that the present practice of B.S.I. was to place the number at the foot of the back page in order to avoid confusion with the series number, date, etc., which already appeared on the front page. The majority view appeared to be that this was a problem related to the general layout of standards, at present not satisfactorily covered in the recommendations on the layout of periodicals. It was felt that, before involving itself in this matter, the Committee should enquire from the ISO Council itself whether there was not a more suitable committee to deal with this and, if not, whether this Committee itself should attempt to formulate a standard procedure.

Transliteration of Cyrillics

It was announced by the Secretary that a request had been received from the American Standards Association asking for further time to study the recommendations circulated earlier this year, and that postponement till June, 1952, had been granted.

Layout of Periodicals : Second Draft in French and English

After considering a number of detailed modifications and agreeing to the omission of item 261, the Committee was pulled up short when its attention was drawn to the existence of a document issued several years previously by the American Standards Association's Committee Z.39.1, which itself had been drawn up along the lines of the ISO/TC/46 draft recommendations. Copies of this document were made available and distributed during the meeting, and it was unanimously agreed that it would have to be compared carefully with the ISO/TC/46 second draft. The American delegate was requested to impress upon the A.S.A. the need to deal with this matter urgently and to send their views to the ISO/TC/46 Secretariat. Other delegates were asked to refer the two documents to their appropriate sub-committees for similar action. The Secretariat would then circulate the comments received to all member bodies for consideration at the next full meeting, where a new revised draft could be approved.

Abbreviations for Titles of Periodicals

The Committee agreed that the document drawn up at Ascona should now be circulated as a first draft recommendation, with a request that comments should be sent to the Secretariat on the list of conventional contractions (Sigles), to which changes had already been proposed by the Danish section.

The Committee's attention was drawn to the difficulties facing bibliographers and compilers of lists of periodicals, who had tried to work with the original list of recommended abbreviations in ISA Bulletin 23, found it inadequate and were now faced with the possibility of having no list at all but only a set of general rules liable to varied interpretations. Many members felt that it would be impossible to make a list, which was anything like complete, but it was eventually agreed that

the decision whether or not to include such a list should be left to individual national standardizing bodies.

Bibliographical References

Here again, there was a conflict of opinion as to the optimum length and scope of the international standard. The ISO/TC/46 draft recommendation was, therefore, referred back to the working party responsible, with a request that it should examine the French criticisms and the Dutch proposal for a shorter standard, which itself should first be made more consistent.

Format and Layout of Index Cards, Slips, etc.

Bibliographical Strips

Indexes, Summaries, Contents Lists

The Committee approved a number of proposals submitted by Working Party 2 as a result of The Hague meeting in May, and requested the Secretary to arrange with the editorial panel (Mme S. Briet and Mr. F. L. Kent) to prepare agreed French and English versions for circulation to all member bodies.

SUB-COMMITTEE 1 DOCUMENTARY REPRODUCTION

Paper Sizes and Tolerances

The recommended tolerance of ± 1 mm. was subjected to considerable criticism, particularly by the British delegate, who pointed out that this was much too small in view of the extremes of temperature, humidity, etc., under which the measurements might be made. He, therefore, urged that it should be increased to $\pm$ or ± 1.6 mm.

Terminology, Microcopies, Reading Apparatus, etc.

The document prepared by the AFNOR Secretariat was given brief consideration and its general arrangement approved in principle. At the request of the British delegate, however, it was agreed that the items of most immediate urgency should be dealt with first, rather than proceeding in the strictly logical order.

It was decided that the first meeting of the Sub-committee should take place, probably in Paris, in late December or early January.

BRITISH STANDARDS INSTITUTION

As one of the national standardizing bodies, the British Standards Institution is naturally interested in all those standards in the documentation field which at the Rome meeting of ISO were considered from the international point of view. The B.S.I.'s most recent publication of British standards in documentation are BS.1629:1950, *Bibliographical references*, and BS.1749:1951, *Alphabetical arrangement*. Work on standards for the transliteration of Cyrillics, the layout of periodicals and the abbreviated titles of periodicals is in progress, but the issue of British standards is being delayed in the hope that international opinion will soon reach a widely acceptable solution of some of the most controversial problems.

BRITISH UNION CATALOGUE OF PERIODICALS
SEVENTH ANNUAL REPORT OF THE COUNCIL FOR THE
YEAR ENDING 31ST MARCH, 1951¹

Policy

Early in the year, the Council took the opportunity afforded by the change of Editor to review the whole position of the British Union Catalogue of Periodicals with the object of enabling this important undertaking to be brought to a satisfactory completion. In conducting this review, the Council has had in mind the fact that the fund so generously provided by the Rockefeller Trustees for the compilation of the catalogue will soon be exhausted.

From a careful examination of the great mass of material accumulated since the inception of the scheme, it became apparent that a complete adherence to the original plans would render the completion of the catalogue a remote possibility, and certainly impossible within the period of the grant.

The definition of a "periodical" had been so framed that it brought within its scope great masses of material which, though issued at intervals, were of doubtful value for the main purposes of BUCOP. Amongst these were administrative annual reports of all kinds of bodies throughout the world; documents issued by the central and local government departments of all countries; the 'series' of many kinds issued by publishers; local directories and guides, time-tables; and other miscellaneous items in great variety.

The Council, after very careful consideration, came to the conclusion that while a record of these secondary types of periodical and serial publications might have many uses, it constituted a burden from which the more vital body of BUCOP might be relieved.

In accordance with this decision, a comprehensive revision of the BUCOP files was carried through in the early part of the year, with the result that there are now (a) an 'active' file representing about 120,000 periodicals, and (b) a 'suspense' file containing a large mass of secondary material.

The benefits of this have been apparent, for it has since been possible to direct the energies of the staff to the vital task of recording the holdings of periodicals of the co-operating libraries, instead of chasing unknown quantities of material of doubtful primary value. In other words, the whole effort is being directed towards fulfilling the desire of the Council that BUCOP shall be prepared for publication as speedily as possible.

In authorizing this change of procedure, the Council had in mind the clause in its Constitution which lays down that 'Should the publication of the catalogue prove impossible, the material collected shall be given to the Trustees of the National Central Library, for use in such a way as will

¹ The Sixth Annual Report was published in *Aslib Proceedings*, Vol. 2, No. 3, August 1950.

best supplement their records of periodicals in English libraries'. Although such a possibility is envisaged in the Constitution, the Council feel strongly that such a local deposit of so valuable a work of reference would limit its utility to an extreme extent, and that every effort must be made to ensure the appearance of BUCOP in a form that will give it wide circulation and accessibility. The file of secondary material, on the other hand, might well meet most demands if so deposited.

At the end of the year, a Sub-committee of the Council was appointed to consider all matters relating to the publication of BUCOP.

Present State of BUCOP

The active files of BUCOP now contain a volume of material roughly equivalent to that of the American *Union List of Serials*. As the year 1950 has been taken as the bibliographical date line for the inclusion of new titles, the active files are now complete apart from entries for older periodicals emerging from the lists of library holdings.

The incorporation of library holdings is proceeding as rapidly as possible. The libraries already dealt with include the British Museum and the Science Library, with field work proceeding at the National Library of Scotland; twelve University and College libraries, with field work proceeding at the Bodleian and completed at Cambridge; fifteen libraries of Societies and Institutions; and fifteen Public Libraries, including Guildhall. In addition, a very large number of holdings have been included from indirect sources, and these are in process of check and assimilation. Lists are in hand for about 120 other libraries of all kinds, and many others are in progress of compilation. The work has been assisted by the Editor's many contacts with libraries throughout the country, and Miss Hammond has made official visits to Birmingham and Oxford.

Staff. The new Editor, Mr. James D. Stewart, took up his appointment at the beginning of the year. Miss Murial E. Hammond, F.L.A., and Dr. E. Saenger have continued throughout the year as chief cataloguer and cataloguer respectively, and have given the Council loyal and invaluable service in a task that is seldom easy and often exacting.

BRITISH UNION CATALOGUE OF PERIODICALS

INCOME AND EXPENDITURE FOR THE YEAR ENDED 31ST MARCH, 1951

Year to 31/3/50 £	£	GRANT FROM ROCKEFELLER FOUNDATION..	£	s.	d.	£	s.	d.
1,000			2,000	0	0			
		LESS EXPENDITURE						
25		Administrative Expenses	25	0	0			
1,503		Salaries	1,673	11	6			
12		Printing and Stationery	4	11	0			
3		Postage	1	16	11			
2		Travelling Expenses	1	0	0			
3		Audit and Accountancy	3	3	0			
4		Sundry Expenses	1	0	4			
<u>1,352</u>			<u>1,710</u>	<u>2</u>	<u>9</u>			
		SURPLUS FOR THE YEAR ENDED 31ST MARCH, 1951				289	17	3
<u>352</u>		(Deficit)						
		ACCUMULATED SURPLUS brought forward at 1st April, 1950				73	13	9
426		Add Surplus for the year ended 31st March, 1951				289	17	3
<u>352</u>		(Deficit)						
<u>74</u>			<u>363</u>	<u>11</u>	<u>0</u>			
		Represented by						
143		Cash at Bank	394	1	2			
15		Cash in Hand	28	1	10			
<u>158</u>			<u>422</u>	<u>3</u>	<u>0</u>			
84		Less Sundry Creditors	58	12	0			
<u>74</u>			<u>363</u>	<u>11</u>	<u>0</u>			

We have examined the above Income and Expenditure Account with the Books and Records of ASLIB and certify that it is correct and in accordance therewith.

(Signed) WEST & DRAKE,
Chartered Accountants.

Sardinia House,
52, Lincoln's Inn Fields,
London, W.C.2.
30th April, 1951.

LONDON AND BRANCH MEETINGS, 1951-52

CONTENTS

	PAGE
INTRODUCTION	57
LONDON WINTER MEETINGS	
<i>5th December, 1951</i>	
SHELL FILM UNIT STOCK SHOT LIBRARY. BERNARD CHIBNALL, B.SC., A.L.A. (Librarian, Shell Film Unit)	59
<i>5th February, 1952</i>	
PATENTS AS A SOURCE OF INFORMATION. H. R. MATHYS, B.SC., A.R.I.C., F.C.I.P.A. (Chartered Patent Agent, Courtaulds, Ltd.)	69
SEARCHING CLASSIFIED PATENT SPECIFICATIONS. E. M. BENNETT, B.SC., A.R.C.S. (Principal Examiner of Her Majesty's Patent Office)	75
MIDLAND BRANCH	
<i>Birmingham, 23rd January, 1952</i>	
INFORMATION SERVICES AT WORK. K. BOODSON (Division Librarian, I.C.I., Ltd., Metals Division)	87
NORTHERN BRANCH	
<i>Manchester, 25th January, 1952</i>	
TEXTILE TERMS AND DEFINITIONS. J. C. WITHERS, PH.D., F.R.I.C., F.I.T. (Vice-President, The Textile Institute)	95
•MEMBERS' FORUM	
THE PUNCHED-CARD INDEXING EXPERIMENT AT THE LIBRARY OF THE ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL. H. D. ASHTHORPE, B.A. (Information Office, A.E.R.E.)	101
WHY 'DOCUMENTATION' ? S. R. RANGANATHAN, M.A., F.L.A. (Professor of Library Science, University of Delhi)	105
THE PREPARATION OF SYNOPSSES	109

BRITISH BOOK NEWS

is an indispensable guide to the best British books, including those published in the Dominions. Bibliographies of specific subjects and articles of general interest relating to the book world are included every month, but the main feature is the Book List which provides condensed reviews, contributed by specialists in their subjects, of the most important new books and reprints published throughout the year. Whatever type of book you need to study or like to read, you will find the best of them reviewed in *British Book News*. In addition, publishers' announcements keep you advised of future publications.

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Publication No. 244 of the
INTERNATIONAL FEDERATION FOR DOCUMENTATION (FID)

The Directory is intended as a preliminary guide for those who wish to obtain microfilms or photocopies from foreign countries.

The aim has been to compile a list of addresses in every country to which orders may be sent.

For each reproduction service full data on the material handled and the cost of services are given.

An introductory chapter gives a short survey of modern processes of documentary reproduction.

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FID

6 WILLEM WITSENPLEIN, THE HAGUE, THE NETHERLANDS

ASLIB PROCEEDINGS

Volume 4

May, 1952

Number 2

INTRODUCTION

IN accordance with the custom of previous years, Aslib organized a series of meetings in London during the autumn and winter of 1951-2. The first of these was held on 7th November, 1951, at Chaucer House, when Mr. J. P. Torrie, Work Study Officer of the Work Study Section, Technical Department, Imperial Chemical Industries, Ltd., spoke on Method Study. The Chair was taken by Mr. Bernard Ungerson, Staff Manager of the Distillers Co., Ltd.

At the meeting on 5th December, 1951, Mr. Bernard Chibnall described the Shell Film Unit Stock Shot Library and illustrated his talk by showing some material from the Shell Library. The Chairman was Sir Arthur Elton, Director of Film Centre, Ltd., and the meeting was held in the British Council's Film Theatre. Mr. Chibnall has kindly recast his notes in narrative form and we have pleasure in publishing his paper in this issue.

The third of the winter meetings was held at the Institute of Physics on 2nd January, 1952, when Dr. H. R. Lang, Secretary of the Institute, spoke on editorial work and described the technique and procedures involved with particular reference to those special librarians and information officers who so often find themselves responsible for the production of bulletins and other publications. Mr. A. J. V. Gale, Joint Editor of *Nature*, took the Chair and stressed two valuable maxims: 'Don't forget a type is made of metal' and 'Make friends with your printer'!

On 5th February, 1952, at Chaucer House, Aslib's fourth winter meeting was devoted to 'Patents as a source of information' under the Chairmanship of Mr. E. B. Uvarov, Head of the Technical Information Bureau of Courtaulds, Ltd. Two very helpful papers were presented, by Mr. H. R. Mathys, Chartered Patent Agent for Courtaulds, Ltd., and by Mr. E. M. Bennett, Principal Examiner of Her Majesty's Patent Office. Both of these are printed in full in this issue, together with a summary of the discussion which followed.

The March meeting organized by Aslib in London took the form of visits to the *Daily Mail* Library at Northcliffe House, and to the B.B.C. Reference Library at Broadcasting House. For these facilities Aslib is much indebted to Mrs. M. Lindsay and to Miss Florence Milnes, the librarians respectively concerned.

The newly-formed Midland Branch of Aslib has been quick to get into its stride and we are glad to be able to include the paper, slightly

shortened, given by Mr. K. Boodson of I.C.I., Ltd., Metals Division, at the Birmingham meeting on 23rd January, 1952. We feel no apology is needed for printing yet another paper on industrial information services. The technique of information work is still developing but information service has been in existence long enough for those who have pioneered in the field to be able to give much useful advice as a result of hard-won experience. Each approaches the subject from a slightly different angle and the experts do not always agree on methods! That is probably all to the good. Information service, by its very nature, varies widely in type and a multiplicity of examples is probably more helpful at this stage than any premature attempt at standardization.

The Northern Branch of Aslib held its Annual General Meeting on 25th January, 1952, at Manchester Central Library. We have pleasure in publishing Dr. J. C. Withers' paper on 'Textile terms and definitions' which is both erudite and entertaining.

It has been pointed out to the Editor that the analysis of an experiment which proves to be a relative failure can be as valuable as the record of a success, particularly when it concerns the application of new techniques. For this reason we welcome the paper, printed in 'Members' Forum', contributed by Mr. H. D. Ashthorpe, who describes the experiment in the use of punched cards for indexing purposes at the library of the Atomic Energy Research Establishment at Harwell. As the author emphasizes, the fact that the punched cards did not prove suitable for the particular need at A.E.R.E. does not invalidate their use for other purposes or in other organizations, but some of the lessons learnt at Harwell may save others from similar pitfalls.

Lastly, we are glad to be able to include a contribution by Dr. S. R. Ranganathan, Professor of Library Science at the University of Delhi and well known to many Aslib members. Those who have been asked, or who may have asked themselves, what the term 'documentation' covers and how it came to be used will be interested to see his reply to a friendly criticism by Sir Hilary Jenkinson.

E. M. R. DITMAS,
Editor.

A CORRECTION—PLEASE NOTE

The Editor of *Aslib Proceedings* regrets that an unfortunate misstatement has been discovered in the report of one of Madame Ravage's contributions to the discussion following her presentation of Mr. Carter's paper at the 1951 annual Aslib Conference (*Aslib Proceedings*, vol. 3, no. 4, p. 268). She was reported as saying that "A synopsis of the recommendations by the Royal Society had been prepared by Dr. Holmstrom and would be published in five languages". This is not correct. Dr. Holmstrom has not made any such synopsis but is in process of distributing in four languages an amended version of the Royal Society's *Guide for the preparation of synopses*. We very much regret any inconvenience that may have been caused as a result of this misunderstanding. Further information concerning the *Guide* will be found on p. 109.

SHELL FILM UNIT STOCK SHOT LIBRARY

BY BERNARD CHIBNALL, B.Sc., A.L.A.

Librarian, Shell Film Unit

London, 5th December, 1951

WHEN a film is being made a much greater footage of material is exposed than is required for the final production. The ratio varies from four to one to fifteen or twenty to one. The former would apply to a rigidly scripted film where each shot can be exactly specified and pre-arranged, the latter to a film where the action is unpredictable and cannot be planned, as, for example, in filming racing of any kind.

Much of the film which remains after a production is finished may be valuable in later productions or for historical reasons. It may be similar but additional to parts of the completed film (known as the show copy), it may be material which has not been used in the show copy at all or it may complete the coverage of a particular subject illustrated briefly in the show copy. Any film which is likely to be of value is selected for storing as a stock-shot (a self-explanatory term), sorted, catalogued and indexed. The whole forms the stock-shot library which is a fundamental part of all modern film production.

It is necessary here to explain the materials of which the library consists. Briefly, the original exposure in a camera of sensitive photographic material, after photographic processing, produces a negative. From this is produced a positive, comparable to one's own snapshots but on a transparent base, until recently celluloid but now cellulose acetate. (We are only concerned with 35 mm. film which is the standard size for motion pictures.)

The negative is identifiable by an edge or key number which is printed by ink or photographically at intervals of one foot along the outside edge and is copied photographically on all prints made from the negative. Given the positive we can always identify by the edge number the corresponding negative. This is essential, as the negative, which is irreplaceable, is handled as little as possible and all sorting is carried out with the positive. The negative is usually broken down immediately after processing into individual shots each labelled with their edge numbers and these are stored in numbered cans, the contents of which are listed in a book. When a negative is required reference to this book locates it immediately. When a film is completed the appropriate individual rolls of negative are cut and joined to match the assembled positive and from this negative all subsequent prints are made. This applies separately to both picture and sound and, in fact, these are only combined in the print which is projected.

The first step now is to sort the remaining positive and make the selection of the material it is proposed to place in library.

If possible the material should be sorted by the director who has worked on the film, as he is familiar with it and can readily identify shots. Close-ups, in particular, which are very valuable, may be very difficult to identify out of their context. General material can be sorted by the librarian and the burden of sorting is in fact usually shared between the director and the librarian.

Selection is a critical stage. Obviously useless material can be discarded on the first sorting. This would include shots which are too short (usually less than five feet) or shots that are photographically bad. The more obvious defects can be recognized on portable viewing machines such as editolas or movioles, which are shown in the illustrations, but the final critical selection can only be made when the material is viewed in a full-size projection theatre. Only here can all photographic defects be noted, and the full pictorial significance of a shot appreciated.

If it is to be kept a shot must be of good photographic quality unless it is part of a sequence or is unrepeatable. By a sequence is meant several shots on the same subject where, even though the quality was bad on one shot, one would keep it as part of the whole. Unrepeatable shots include almost any accidental or unforeseen incident which the camera has recorded, events in uncommon surroundings and so on. The standard of selection is obviously lowered as the difficulty of repetition increases.

To exemplify our selection practice we may refer to a recently completed film about Tidemills. These old sources of power are falling into decay and the last one in working order is at Woodbridge in Suffolk. The library from this film consisted of :

1. Shots of the Woodbridge mill, because it may not be working much longer.
2. Shots of the sea, because they are always in demand.
3. Exterior shots of different Tidemills now no longer working but placed in pleasing surroundings. Such shots were well photographed and worth keeping because of the expense entailed in taking them again.

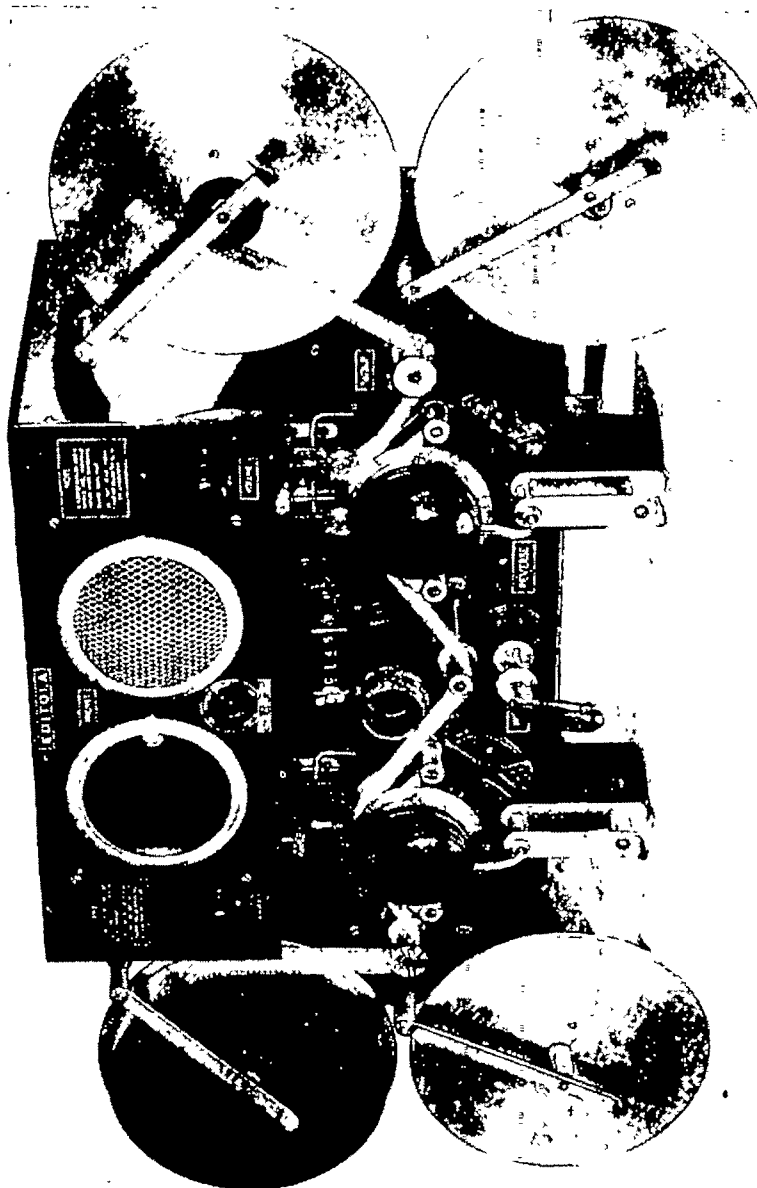
Similar considerations apply to the selection of all material.

When a final selection has been made the edge numbers of the positive are noted and the corresponding negative located. The negative is stored in individual shots, the positive in one thousand feet rolls. The tins are numbered serially with a prefix NP (negative picture) : the corresponding positive is numbered similarly but with the prefix PP (positive picture). The former obviously takes up more space, thus two cans of negative NP.12 and NP.13 may correspond to one can of positive PP.12/13.

For each shot an individual catalogue slip is made out giving the location (NP number), a description of the shot and its edge number. This stage is discussed below.

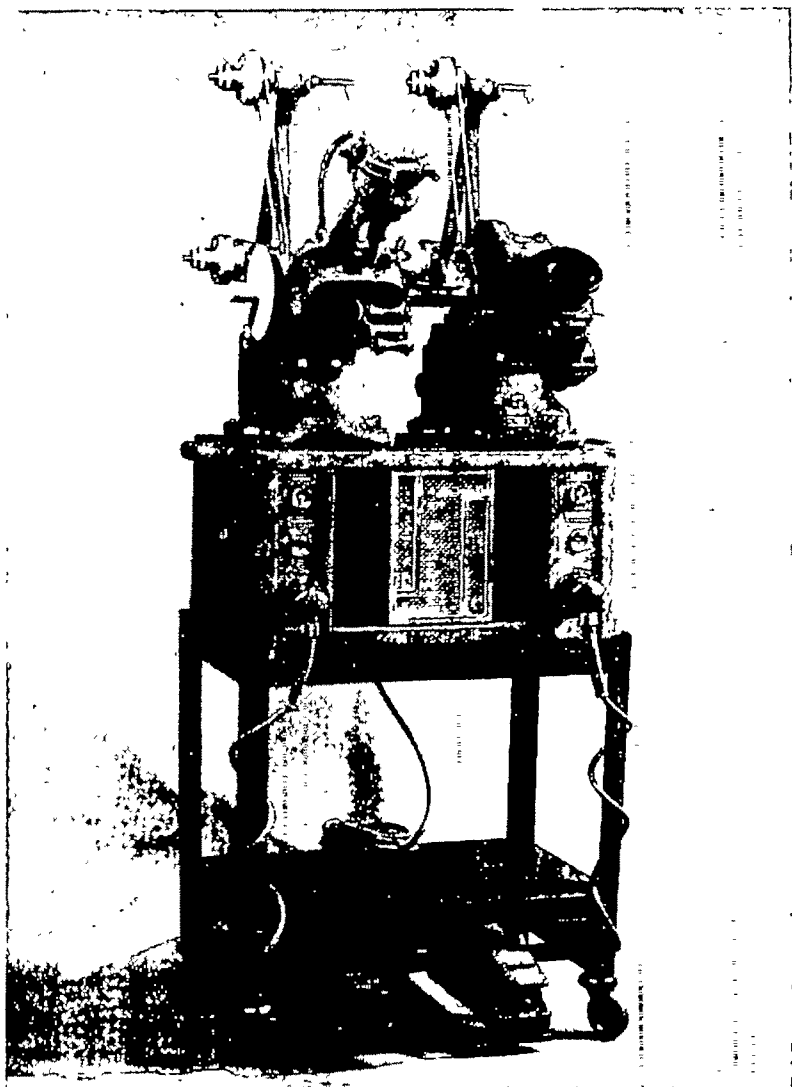
The processes described above have applied to picture material. Sound effects are recorded on separate negative and positive from the picture and usually at a different time. For various reasons sounds are less distinctive than pictures and the same sound will apply to a number

CHIBNALL: A STOCK SHOT LIBRARY



THE EDITOLA

Separate sound and picture can be run respectively on the right hand and left hand side of the machine or a matted print can be run as shown. This machine is most useful for hearing or viewing long lengths of film.



THE MOVIOLA

Sound film is run on the left hand side and picture on the right hand side. This machine is most useful for hearing or viewing short lengths of film.

CHIBNALL : A STOCK SHOT LIBRARY

of different pictures. A library of different sounds is therefore of equal or possibly greater value than a picture library.

The process of selection is similar to that with pictures and for reproducing the sounds we have sound heads attached to moviolas and editolas as shown in the illustrations. Sound negative can be more safely handled than picture negative and for that reason a positive print is not always retained. If anybody wishes to hear a sound effect the negative can be run on the editola safely and with the same result as a positive. (It should be stated here that there is a difference of opinion among technicians on the likelihood of damaging sound negative by this treatment.)

As with pictures a catalogue slip is compiled to record the details of sound effects giving the location (this time an NS—negative 'sound—number), a description of the sound and its edge number.

A sample slip is given below and it is necessary to make some comment on its contents.

Class No.	NP.13/1
Man cleaning car wheels at garage.	
56YG 13562-590	

First the /1 in the location indicates that this is the first shot in the corresponding roll of positive. It is useful to know the whereabouts of a shot when a roll may contain up to twenty different items. By giving the first and last edge numbers we have a convenient means of indicating the length of a shot.

The biggest problem is, of course, in providing the description and the classification of the shot.

No verbal description can give a complete impression of a moving picture. Any details which are given may well not be those relevant to a particular enquiry. The general principle is therefore to indicate the subject briefly with any particularly obvious peculiarities. Unusual weather conditions are, for example, very important—snow, rain or fog, which are not usually the weather for filming, would deserve mention.

As with books or bibliographies the material is only indicated by the catalogue and must be viewed before a final selection is made. However, viewing films requires elaborate apparatus and films themselves are stored in vaults often some distance away. Accordingly, sample frames of the positive transparencies can be filed with the catalogue cards. These, however, are difficult to handle and a method of making sample prints on paper and filing in strips is now being investigated. Care must be taken to see that such additional records for all shots do not involve more work than the occasional viewing of selected material.

The description of sound effects is limited to a bare statement of the actual noise that was being recorded. No attempt is made to indicate other sounds it might be considered to resemble.

The most useful classification of both sound and picture is frequently difficult. The Shell library is classified by U.D.C. but it is not certain that this is suitable for sound effects which frequently are nothing more than bangs, bumps or tinkles.

In practice, the classification of material is quite factual and the interpretation of shots or the atmosphere they create is left to the time when they are required.

All indexes and catalogues must be used intelligently and film-shot catalogues perhaps require more forethought in their use than bibliographies of written works. Directors often require a shot for atmosphere—something to mean a hot summer's day, scenes characteristic of tourist England, something showing the complications of modern machinery. Such concepts cannot be catalogued in advance. Given such requests, the librarian must envisage, in collaboration with the director of the film, scenes which might satisfy the request. Then the catalogue must be used to locate such scenes, but clearly a memory of the material available assists in the conception of such ideas. A visual memory is essential to a film librarian but care must be taken that it is not used in place of the catalogue. Specific scenes may be requested which may not be remembered, but the catalogue must be consulted before a definite answer is given. Sequences or shots can easily be forgotten particularly if they were viewed originally in conjunction with other more impressive material.

Some of the uses of the material have already been indicated but they and other uses may be summarized. Broadly there are two classes of use. Whole sequences or even films can be built up from library material or individual shots may be used to cover an essential point in the commentary or to create an atmosphere.

All films reviewing the progress of a subject gain immensely if they include sequences of genuine historical material and much work may be involved to ensure that such sequences are comprehensive.

An example of such a film is *Air Parade*, a history of the British aircraft industry. At least one-third of this film consists of stock shots drawn from thirteen different sources besides our own library. Selecting shots for such a film is a tedious process. Until a large amount of film has been viewed it is impossible to assess the importance of shots that are available. For example some shots of Bleriot may be seen and selected at the beginning of the search only to be rejected in favour of much better material later on. Economy dictates that copying should be left as late as possible but on the other hand it is difficult to remember all the material that has been viewed. A balance has to be struck between these conflicting demands.

Whilst recognized libraries provide much of the material required for such a film, unusual sources must not be overlooked. Some of the material in *Air Parade* was located in a tin trunk in the basement of a large London house. Such searches are time consuming and often fruitless. Occasionally however the unique shot is located and one is given enthusiasm for more weeks of searching.

CHIBNALL : A STOCK SHOT LIBRARY

The use of individual shots is rather different and usually involves a search for a specific scene or action to fill a gap in the scenes taken for a production, a gap which may have been too costly to fill specially or possibly may not have been foreseen.

For example, we have recently made a short version of a Dutch film showing the laying of a pipeline under a river. No further shooting could take place as the whole operation was complete long before we started work on the new version of the film and we had therefore only the material in the original Dutch show copy. We wished to make three points in the film for which adequate film material was not available. The Editor of the new version therefore turned to the stock-shot library for shots of oil storage tanks, a pipe being coated with bitumen and a large valve being opened in a pipeline system. These shots were available in library, not of course taken on the same location as the film but this would be quite unnoticed when the shots appeared on the screen. By means of these shots the points could be successfully covered in the film and the complete sequence flowed much more smoothly than would have been possible using the original material.

A third use of library material is as archives. Whilst films supply many details of historical interest these are frequently covered more fully in the Stock Shot library. The material on Tidemills mentioned above comes into this category and the Shell library has also a great deal of material on Cornish Pumping Engines and the Newcomen Engine.

So far the methods of a particular stock shot library have been described. It remains to indicate the scope and size of the library and show how it collaborates with other similar bodies.

The Shell Stock Shot library is part of the Shell Film Unit. This itself is a part of the Publicity Department of the Shell Petroleum Company. The Unit was established a few years before the war and from an early date has maintained a Stock Shot library. The system of filing was quite adequate for a limited number of films, but by the time the library had grown to one hundred thousand feet* the system broke down and the writer was taken on to the staff as someone with library experience to develop a system capable of handling larger quantities of material. The methods developed have been described above and are basically those previously in use. The cataloguing system has been completely changed. The present stock in the library is approximately two hundred and fifty thousand feet and it is growing at the rate of eighty thousand feet a year.

It has recently been extended to include library material from films made by The Anglo-Iranian Oil Company, Shell-Mex and B.P. and the Petroleum Films Bureau. This will add about forty thousand feet a year. It is likely in the near future to include a record of library material from films made by Shell Companies overseas. The material itself will be stored in those countries.

The library staff consists of a librarian and two assistants all of whom endeavour to take equal shares of all the work. This spreads the

*A thousand feet of film takes ten minutes to project.

monotonous tasks and makes unavoidable absences of illness and holidays less inconvenient.

There is close co-operation with other film libraries. These are found in all types of film production, documentary, feature or newsreel.

For the use of other companies' shots payment is made of a standard search fee and a royalty charge which is based on the amount of material used.

Only by using all film libraries can we exploit our film resources to the full and it is pleasing to record that the co-operation of film librarians is as good as that of book librarians.

The Chair was taken by SIR ARTHUR ELTON, Managing Director of Film Centre, Ltd. In opening the discussion, he said that the organization of film shots as opposed to completed films was one of great difficulty. Further, the material was often badly stored and handled, and was not classified. Yet such material was of great value; it could be said that all history was lying in tins. Film directors often had to search thousands of feet of film to find the shot they wanted, although the librarians working with the material often showed phenomenal memories. Classification of the shots was the only certain way to make full use of the film library. There were dangers that the classification would become too mechanical. An American library had used a machine, but with little success.

In the compilation of films from stock shots, material of all kinds and from all places was built up into a coherent sequence, and the placing of two unrelated shots in juxtaposition gave each a new value. In tracing shots for films of these kinds, which might be historical or economic surveys, it was sometimes necessary to find material to illustrate an abstract descriptive phrase in the script. Even classification was unable to index the possible emotional content of a shot in ten years time, and the memory and imagination of the librarian were an essential addition to the well classified library.

As a producer, the Chairman said that his work had been simplified by Mr. Chibnall. Tidiness alone was important, but a trained mind classifying and storing the material made the library an instrument worth having. He suggested that the organization and classification of this material was worth some study by Aslib.

MISS J. FULFORD (National Film Library) said that the National Film Library had been using U.D.C. since it was first classified three years ago. This library, however, was not a collection of stock shots but a national repository. However, material was analysed in detail and its subject content indexed on cards by U.D.C.

MR. B. AGARD EVANS claimed that the small and insignificant Ministry of Works film library had been using U.D.C. for classification even longer; since it started in 1945. He said that the Speaker mentioned 'overs' from which the best shots had already been used, and asked whether it was unethical to use stock shots twice.

THE CHAIRMAN replying said that there were certain cliché pictures, for example, an aeroplane crashing in flames, which were used over and over again. In a documentary film, at least five times as much film was taken as would be useful, and the material not used consisted of 'cuts', which were the ends of used shots, and 'overs', which were total shots not used at all. An editor tried to use shots which were not in other films. When shooting was in progress the cameraman often covered interesting material in case it became useful later, and was often given instructions 'to shoot for library' while he was on the spot. The 'overs' provided more important material than 'cuts'.

MR. K. SHAW (British Scientific Instrument Research Association) asked whether the speaker could give any idea of the time taken in classifying a unit of film; did it take longer than a book?

MR. CHIBNALL said that the process took less time than might be expected. He said that there were about 20 feet to a shot and 50 shots in a can. On one occasion classifying 900 shots only took him about two and a half days because many shots had the

CHIBNALL: A STOCK SHOT LIBRARY

same classification number, but fewer shots of greater variety might well take much longer.

Mrs. L. MOHOLY said that the speaker had pointed out that the ear was less discriminating than the eye. She asked whether the apparatus for sound recording was as efficient as that for recording visual images, or was there a lack of discrimination in sound recording apparatus?

Mr. CHIBNALL replied that this was probably the case, but it was not the whole story. The eye could perceive subtleties which the ear could not, and a sound without a visual image was not necessarily specific.

Mr. R. C. WOODS (Ericsson Telephones, Ltd.) said that the ear is certainly less sensitive than the eye. Though no apparatus is perfect, modern recording methods are highly efficient and adequate. The quality of reproduction, however, is another matter, dependent on many factors, and can be anything from excellent to bad. Perfect reproduction is not necessary for intelligibility, as is well known in telephone conversations, for the mind usually fills out the gaps in an imperfect transmission to produce an intelligible message. Mr. Woods went on to ask what purpose the Shell Film Library served; was it for training or for advertising or for both, and to what extent was its material available to other film producers?

Mr. CHIBNALL replied that the library had no complete films in it, and its primary purpose was to serve the Shell Film Unit who produced complete films. It also co-operated with other film-making units here and overseas, both in providing and obtaining material.

THE CHAIRMAN added that the Shell Film Unit Library was a stock shot film library. There was a separate film library. The unit about made twelve films a year, none for advertisement and few for training. Their subjects were generally with broad reference to the oil industry, agriculture, prime-movers, and physics. The only advertising was through prestige. He stressed that the Shell Library was one of the few documentary units to classify stock shots.

Mr. C. E. C. HEWETSON (British Employers' Confederation) asked, in connection with the classification of shots, how the action was differentiated by U.D.C. For example, shots of a librarian picking oranges and eating oranges.

Mr. CHIBNALL said that this was a problem, and could not be decided on quickly. The librarian had to get background experience before he could realize how to differentiate in classifying. He suggested that the shots would probably be found under the general heading of 'oranges', but the conditions in which actions were performed were often important; for example, a bus looming up through the fog to a bus stop. The weather was often important, and it was hard to use U.D.C. for this without being cumbersome. He felt that he had not yet sufficient experience to be fully competent in these details.

Miss B. SCHAFER (B.X. Plastics) said that the film society to which she belonged had borrowed and shown Shell films, and these were greatly appreciated.

THE CHAIRMAN in summing up said that classification and indexing were important but neglected. The complex details of action, weather; the movement to or from the camera and so on, ought to be recorded, but the library could be destroyed by the classification of too many aspects. This kind of classification, however, was very important, and was not usually dealt with. He invited the audience to see the Stock Shot Film Library and the card index. The librarian's work was very complicated but very worth while.

(Additional note from Mrs. L. Moholy, submitted in writing subsequent to the meeting.)

I am most grateful to Aslib and Mr. Woods for their kindness and for the trouble taken in connection with my question. Perhaps I might say, in conclusion, that it was not intended to imply any objection or doubts concerning the technique of film making. If the plain statement that the ear is less discriminating than the eye did not satisfy me, this was due to what I might call the educational approach rather than the technical one. Having had some experience in the training of the human eye as well as the ear, I would submit that the first is of much longer standing than the last (as far as films are

concerned), and that, moreover, the outcome of such training depends on method and instrument as much as the receptiveness of the (eye or) ear.

I would therefore suggest that the ability of discrimination is determined by at least three different factors : (1) the length of training ; (2) the accomplishment of method and instrument ; (3) the receptiveness of the (eye or) ear. If the ear is less discriminating in listening to sound tracks than the eye is in watching the pictures, this may be a temporary, but not, as the statement seemed to imply, a permanent state of affairs.

NOTE :—Reference has been made to film stored in bad conditions. Such film can deteriorate quite rapidly. It may be of great historical value and should be stored with great care. Librarians who have such material in their care, or know of its existence should seek advice on proper storage conditions from The Curator, The National Film Library, 164 Shaftesbury Avenue, London, W.C.2.

This body may itself be prepared to store the material if it is felt to be of sufficient value.

PATENTS AS A SOURCE OF INFORMATION

By H. R. MATHYS, B.Sc., A.R.I.C., F.C.I.P.A.

Chartered Patent Agent, Courtaulds, Limited

London, 5th February, 1952

PATENTS are very old. Their origin is lost in history but we know that the Greeks in 500 B.C. at Sybaris encouraged inventive cooks by granting them patents for new table delicacies.

The full title is Royal Letters Patent for Invention. The word 'patent' simply signifies that this letter from the King is open for all to read, but it tends to be used loosely to mean any of the three entities which have to be considered :

1. The invention.
2. The specification written by the Inventor or his Agent describing the invention.
3. The Royal Letters Patent, which is issued by H.M. Patent Office and is, in effect, the title deed.

I am a Chartered Patent Agent which means that I am one of some 400 who, by service and examination, have gained entry on the Board of Trade Register and so may offer our professional services to the public for payment. We are concerned with all three entities :

Firstly, extracting from the inventor the details of his invention and settling with him its full implications.

Secondly, drafting the patent specification.

Thirdly, persuading the Examiners at the Patent Office to agree to recommend the King to grant the Royal Letters Patent (in practice now they do not worry the King at all although at one time the King had to sign personally on two occasions before the patent was granted).

If you are an inventor and you are considering patenting, my advice to you is simple—make use of professional assistance.

This advice is altruistic, as I have only one client and am not permitted to have others.

The purpose of this paper is not, however, to further the welfare of Patent Agents, but to give some advice on how to read other people's patent specifications and why you should read them.

A Royal Letters Patent for Invention is in the nature of a bargain. In order to encourage the establishment of new industries in the United Kingdom, the Crown grants a limited monopoly of sixteen years and in return the inventor describes his invention in a patent specification, so that when the monopoly expires the invention is available for general use. There is also an obligation on the inventor to put his invention into commercial use during the monopoly period, and if he fails other parties interested may get permission to do so on terms set by the Comptroller of the Patent Office or by the Court.

The patent specification has a dual function :

- (a) to set out precisely the limits of the monopoly claimed,
- (b) to describe the best form of the invention known to the inventor together with an indication of alternatives and modifications.

In order that it may fulfil its first function, the specification is written with an eye on the High Court Judge, the Appeal Judges and the House of Lords, and so must be written with the precision of any other legal document. For both functions however, the specification is addressed to the man skilled in the art to which the invention relates, so that it can be written on the assumption that the reader has a general, even specialized, knowledge of the subject and will understand the technical symbols, diagrams, etc., customarily used in dealing with that subject. In the main patent specifications avoid legal and technical 'jargon' if possible because 'jargon' never has the necessary precision of meaning as the Patent Office Examiners are quick to point out.

The patent specification comes into being in the following way :

To start with the inventor normally produces one particular mechanical device or process. It is the Patent Agent's job to extract from the inventor the principles involved and where and why a new technical effect is obtained. Then to settle, with the inventor, possible alternatives or modifications so that the claim may be clearly and precisely set down. This claim must be effective must not be too narrow, otherwise it is easily avoided. On the other hand, the inventor must not be too greedy as otherwise his claim will include old ideas or unworkable ideas and the patent will be invalid and he will have no protection at all. The whole specification is then drafted and filed at the Patent Office. There it receives a strict examination as to form and novelty, and as a result may be revised sometimes substantially, to meet the observations of the Examiner, who is a highly-trained man usually specializing in a particular subject. When the Examiner is satisfied the specification is formally 'accepted' and is printed.

Most British specifications follow a set pattern :

(a) the title ; this is not very instructive and although sometimes used in libraries for classification purposes it is wholly unsuitable for that purpose.

(b) the opening statement : something such as 'This invention relates to internal combustion engines' so as to indicate the general field in which the invention has been made.

(c) a statement of what has been done before : sometimes this is very full and gives references to prior patent specifications and occasionally other documents. Its purpose is to assist the Patent Office Examiner and later the Court to determine the limits the inventor intended to claim on his claim.

(d) a statement of the object of the invention : for example, 'to obtain higher speeds'.

(e) a statement of invention : this normally starts—'According to the invention'

MATHYS : PATENTS AS INFORMATION

the present invention . . .' and it is essentially a legal statement. Generally it is in the same words as the formal claims.

(f) a general description of the preferred forms of the invention.

(g) a specific description : this is probably the most important part of the specification for most members of Aslib. With a mechanical invention it is linked up with drawings attached to the specification. With an electrical invention it will normally be linked up with appropriate circuit diagrams. With a chemical invention it will contain a number of specific tabulated examples and sometimes be linked up with a flow diagram. It will frequently finish with an indication of alternatives such as 'instead of the overhead valves shown in the drawings, side valves may be used' and so on. This statement of alternatives may be most important for the man wishing to get technical information from the specification.

(h) finally the formal claims : these are essentially legal.

The specification as printed frequently comprises one or more Provisional Specifications and a Complete Specification.

My advice to members of Aslib looking solely for technical information is to ignore the Provisional Specification, turn to the complete specification and with that pass directly to the object, then to read the next few paragraphs quickly and finally to concentrate on the specific description. It is seldom necessary or even desirable for anyone looking for technical information to read the claims at all.

Foreign patent specifications follow a similar pattern but vary in some degree from country to country. German, Dutch and Scandinavian specifications tend to be rather brief and generalized. U.S.A. specifications, on the other hand, tend to be long and detailed. United States practice demands a description and drawings of all features which may be essential to the operation of the invention in practice even when not essential for understanding it.

Further, American Patent Agents (usually called Patent Attorneys) tend to say the same thing in several different ways to give them scope for argument with the U.S. Examiners who can be very arbitrary in their objections. The U.S. Patent Attorneys also have a habit of using the word 'object' when by our reasoning they mean the 'invention' itself. Despite these variations in form, my advice to members of Aslib wishing to get technical information from a foreign specification is the same as that for a British specification, namely pass quickly over the opening paragraphs until the specific description is reached and then concentrate on that and on any subsequent or immediately preceding paragraphs which indicate possible alternatives or modifications. A formal claim of a German specification can be instructive but on no account try to get technical information from a U.S. specification by studying the formal claims.

I have dealt at some length with U.S.A. specifications as they are the most widely read of the overseas specifications ; also many U.K. patent specifications are direct copies of an original U.S.A. specification.

Royal Letters Patent for Inventions have been granted in the United Kingdom for centuries. Printed copies of the inventors' specifications filed since 1617 are available in the Patent Office Library in London; some or all of them are also available in twenty public libraries throughout the country. Copies of individual specifications can be purchased from the Patent Office in London for 2s. 8d. each.

Each year about 20,000 new British patent specifications are published and about 40,000 new United States of America patent specifications.

Each patent specification is a recording of an invention at the time it was made, and patent specifications taken collectively are a comprehensive history of all technical developments. In them are to be found details of all those machines and processes in use, those which have been superseded, those yet to be used, and inevitably many which never will be used. In this comprehensive history will be found the original specification describing Watt's steam engine, Edison's phonograph, Dunlop's tyre, Marconi's wireless, Baird's television, Whittle's jet engine, etc., etc., and the multitude of improvements and modifications made to these important inventions, and, incidentally, some interesting earlier suggestions which preceded them.

All developments have a history. Generally a very long history. First one finds an early suggestion often no more than a pious hope. Then early practical attempts, often premature for such reasons as lack of suitable materials, lack of adequate demand, etc., then the first practical and commercial developments followed by the inevitable improvement and modification. All this will be found in patent specifications.

As an example, the first recorded suggestion of man-made fibres was that of Robert Hooke in 1665. Many proposals were made during the nineteenth century but the first real commercial developments came in the early 1900s for viscose rayon, in the 1920s for acetate rayon and in the late 1930s for nylon. The tremendous amount of information on this industry available in patent specifications is shown by the fact that in Courtaulds' Patent Department there is a collection of nearly 100,000 patent specifications describing various features of rayon manufacture and related subjects. These specifications come from all countries but are mainly British, American and German, as in practice it is found most important inventions have been made in one of these three countries, or when made elsewhere have been the subject of patent applications in one of these three countries. Similar collections relating to their appropriate industries are to be found in Patent Departments throughout the country.

Each patent specification describes the results of a technical investigation; although the results in some cases may be little more than confirmation of earlier results each one adds to our general technical knowledge and indicates the probable direction in which the technical knowledge will be applied commercially as patents are concerned far more with practice than theory.

I have said that taken collectively patent specifications are a comprehensive history. The collective part must be stressed. Each patent

MATHYS : PATENTS AS INFORMATION

specification can be put in the same category as the facts (despatches, letters, memoranda, etc.) which the good social historian seeks out and studies in the original, and on which he builds up his commentary emphasizing the relation of one to the other, general trends and so on. Each patent specification alone is a contemporary recording of a piece of history in the making and for the general commentary it is normally desirable to find and study a number of relevant specifications and to consider them together with other technical information which necessarily must be taken from other and complementary sources.

The patent specification sets out the practical results of a technical investigation. It may describe a laboratory model, a prototype machine, or, rarely, the final commercial form. Whether the approach was empirical or theoretical the specification avoids theory and speculation.

Patents are concerned essentially with practical matters. Theories and generalizations have their place in technical development, but they are subject to constant revision, dispute and argument. Whether Watt did, or did not, understand fully why his steam engine worked, we have his contemporary description of the engine he built and operated and so have a solid basis on which to work in compiling a survey or commentary on the developments in that field.

Many members of Aslib who are required to make surveys and commentaries in special fields of technical development, and are not already familiar with patent specifications, may wish to know how and where to find them.

If your firm has a Patent Department, then it is a straightforward matter to obtain through them the information you require. But if not, I am advocating that you should know yourselves how and where to find the information which you require from patent specifications. Your Company's Patent Agents have many clients in many fields of industry and it is impossible for them to maintain detailed records of all the patents in all the industries with which they are concerned. In fact it would not be practicable in any way. Therefore each search must be a separate and somewhat laborious matter for them and so expensive to your Company. But to anyone concerned with a particular industry such searches can be relatively quick and most fruitful after a little experience. The Patent Office not only makes available copies of the specifications of all countries but they have devoted tremendous thought and effort to classifying, indexing and abridging. They issue, at relatively small expense, a weekly journal, annual indexes, volumes of classified abridgments and other literature all designed to enable the public to scrutinize and reap a real benefit from the collective efforts of inventors throughout the centuries. Mr. Bennett, principal Examiner of the Patent Office in charge of classification, has devoted twenty out of thirty years of his official career to ensuring the orderly presentation of this knowledge and he has kindly consented to explain some of the principles on which he has worked and in so doing to give you guidance on how to set about finding the patent specifications which will give you the information

you are seeking. Mr. Gravell, who is known to you as the Librarian of the Patent Office, has also kindly joined us this evening and consented to give some indication of the services which his library offers in this connection. In the many years with which I have been associated with patents I have always been most impressed by the services offered by the Patent Office. So many people entering the Patent Office obviously have little knowledge of what they want except they are convinced they have made some world-shattering invention. Whether or not their hopes are well founded within a short time one sees them in the Library making use of those carefully classified volumes revealing to them the vast accumulation of technical information. It is my earnest hope that all members of Aslib who do not already know their way about the comprehensive technical history made up of patent specifications will quickly do so and thus help to further technical development in this country.

SEARCHING CLASSIFIED PATENT SPECIFICATIONS

BY E. M. BENNETT, B.Sc., A.R.C.S.

Principal Examiner of Her Majesty's Patent Office

London, 5th February, 1952

IT HAS been a great pleasure to have listened to Mr. Mathys' most interesting paper on the patent specification as a source of information, and I have the added pleasure of having been asked by Mr. Mathys to explain how a seeker after information contained in English patent specifications can track down the specifications he wishes to read. Mr. Mathys suggested that I should explain some of the principles of the Patent Office classification and some of the practical results obtained. However, I propose to alter to some extent this logical order of presentation. After reviewing three lines of attack for locating a specification, I shall briefly review the historical development of the *Classification key*, that is the book in which the scheme of classification is disclosed, then I will show how a hypothetical Mr. X can locate specifications that disclose inventions relating to frying-pans, and finally I will give a short résumé of the principles underlying the scheme of and method of classifying patent specifications. I have adopted this inverted form of presentation because more people wish to use a classification system to find some specific item, than wish to study such a system as an abstract entity.

No difficulty arises for a person who knows the patent number of a particular specification he wishes to read. He merely enters the Patent Office Library or one of the several provincial libraries that are supplied with copies of specifications, and quickly finds what he wants amidst an orderly numbered sequence. Alternatively, he can send 2s. 8d. to the Sale Branch of the Patent Office and obtain a copy by post.

Slightly more difficulty is encountered by the person who knows the name of an inventor in whose work he is interested. Consolidated alphabetically-arranged *Name indexes* are published approximately yearly. If the approximate date of the invention is also known, then the search can be limited to two or three volumes of the *Name index*. For the war years and onwards, these consolidated *Name indexes* have not yet been published. But up-to-date card indexes are located in the Patent Office Library. Also *Name indexes* appear in each week's issue of the *Official Journal (Patents)*. These indexes quote the patent specification number or numbers against each name, and the searcher has then to refer to the quoted specification.

The hardest and possibly most common type of investigation that a searcher makes is a subject-matter search. That is, he wants to find and read all specifications relating to a particular technical art. He therefore requires access to specifications classified according to the subject-matter disclosed therein. The system of classification used by the Patent Office

originated in 1888 and has grown to its present form by adaptation, amendment and change. The first *Key to classification* was printed in 1888. It listed many headings under which subject-matter was classified, some of these headings were subdivided to a slight extent, and numerous references were inserted to direct the user to the pertinent heading in which he was interested. The whole book was arranged in strictly alphabetical order starting with a reference :

Abdominal belts. *See* Belts for personal wear,
followed a few lines further down by the heading :

Absorbent, Surgical. *Class* Medicine, etc.,
and ending with the heading :

Writing-instruments and Stationery and writing accessories (*including*
Educational appliances).

In a *Key* published in 1893 the numerous headings were collected into 146 classes, which were numbered according to their alphabetical arrangement. These classes continued until the end of 1908, by which time the contents of many of them had grown to such an extent that they were split into sub-classes. These classes and sub-classes together with their original numbering persist to the present day, with the exception that original class 101 and sub-classes 12 (ii) have ceased to exist, the subject-matter thereof being absorbed by other classes, and a few sub-classes have in the last couple of years been further split so as to form new sub-classes 2 (iv) and 2 (v), 39 (iv) and 40 (vi), 40 (vii) and 40 (viii).

The physical size of the *Classification key* grew with the years, and in 1927 all the references pointing to headings in which a searcher might be interested were separated from the main *Classification key* and published as a separate volume, termed *Part I of the Classification key*. Unfortunately, this collection of pointer references was not kept up to date but it is now being revised and will henceforth be termed the *Reference index to the Classification key*. It will disclose some thousands of pointer references to the classes and headings of the *Classification key* in which various subject-matters are classified.

The latest complete revision of the *Classification key* is being published as loose-leaf units for each class or sub-class and will comprise about 1,900 pages when completed in August of this year. Thereafter amendment sheets and reprints of classes or sub-classes that have been greatly amended will be issued approximately yearly to correspond with the acceptance of 20,000 Specifications.

I will now explain how Mr. X can make his search for all Specifications disclosing inventions relating to frying-pans. He looks in Part I of the *Key* (previously mentioned as published in 1927) and will find in the alphabetical arrangement the reference :

'Frying pans *See* Hollow-ware'.

He then turns further pages of this book and finds an entry :

'Hollow-ware. Class 66',
the word 'Hollow-ware' being printed in heavy type. He now knows

BENNETT : CLASSIFIED PATENT SPECIFICATIONS

that the classification of frying-pans is to be found in the class-unit for Class 66 and that it will be under the heading 'Hollow-ware'. I might mention that the new *Reference index*, when published, will have every heading annotated with its class number, and so will save a searcher having to turn to another page to ascertain such number. Mr. X now turns to the unit for Class 66, it extends over six pages, and contains four headings, viz. :

Cans, etc., Opening by cutting, etc.

Hollow-ware.

Lubricating cans, etc.

Tubes, etc., Collapsible.

The heading 'Hollow-ware' has under it some references to other classes and other headings, the use of which will be explained later. Thereafter follows a series of subdivisions, a few of which may be quoted here and are :

bodies.

drips and overflows.

handles.

kinds or types.

lids.

linings.

rims.

spouts.

Under the subdivision :

'kinds or types'.

he will find a further subdivision

'frying-pans'

against which is placed the Classification mark D7d. He now knows that all specifications relating to frying-pans are classified in Class 66, D7d. Suppose that his interest is not so much in frying-pans in general, but in inventions directed to corrugation of the pan so as to increase the heating surface. He will find under the heading 'Hollow-ware' a reference in these terms :

corrugated ~~See~~ bodies ; heating-surfaces increasing

and he will look at either the subdivisions :

'bodies'

which has a further subdivision

'corrugated and ribbed'

to which is assigned the Classification mark D1a1, or he will look at the sub-division

'heating-surfaces, increasing' (*including* convection currents, promoting).

This is assigned the mark D1d.

By now Mr. X may have had the scope of his interest widened. He may realize that he is more interested in the use of corrugated bodies not only of frying-pans, but of analogous utensils such as kettles, baking

tins, or steamers, in which case he will wish to peruse all specifications classified under :

D1a1 hollow-ware with corrugated and ribbed bodies. Alternatively he may consider that he wishes to investigate other methods of increasing the heating surface than by corrugating the pan, whereupon he will wish to peruse all specifications classified under :

D1d heating-surfaces, increasing (including, etc.).

If, however, he still feels that he is interested in nothing more nor less than frying-pans *per se*, then he will wish to consult only those specifications classified under :

D7d frying-pans.

Mr. X has now found those parts of the classification scheme under which specifications in which he is interested will be classified. He has still to find a list of such specifications. Such lists in one form or another are incorporated in the abridgment volumes published by this Office ; on manuscript sheets kept in the Patent Office Library ; and also in each week's issue of the *Official Journal (Patents)*. The abridgment volumes are by far the most useful instrument for the searcher, the other lists should only be used for those periods for which no abridgment volumes are at present available.

Mr. X will notice that at the top of the pages of the unit of the Key for Class 66 there is printed 'Group XVII' indicating that he should consult the abridgment volume for Group XVII. Each volume covers a period corresponding to the acceptance of 20,000 Specifications. The latest completed volume for Group XVII was published in 1951 and is for the period covered by Specifications Nos. 560,001 to 580,000. On the first four pages of this volume there is a Subject-matter index. In this index, headings are printed in heavy type and are arranged alphabetically. Under the heading 'Hollow-ware' there is listed the patent numbers of some ninety or more specifications classified under that heading. But Mr. X is not interested in hollow-ware in general but only in frying-pans, so he looks a little further down and finds that there are subdivisions corresponding to those he found in the unit of the Key for Class 66, and that there is a subdivision :

'kinds or types'

with an indent :

'frying-pans'

and against this indent are two numbers, viz. 570,249 and 571,203. So, for the period covered by this volume, those are the only two specifications that are of interest to him. Further on in this volume are abridgments, arranged in numerical order, of all specifications listed in the Subject-matter index. The abridgment of Specification No. 570,249 is headed 'Means for tilting frying-pans, etc.' and states that 'A frying-pan or other cooking utensil is supported in an inclined position by a strut, etc.' The abridgment of Specification No. 571,203 is headed 'Counter-weights for frying-pans' and states that 'A frying-pan is loaded with a slotted-weight which slides on the rim and is positioned to keep the pan

BENNETT : CLASSIFIED PATENT SPECIFICATIONS

level, etc.' If Mr. X decides that he requires more information than is disclosed in the abridgment, it is no difficult task for him to refer to a copy of the actual specification, because he now knows its patent number.

Suppose Mr. X had decided that his interest really concerned the problem of increasing the heating-surface, then he will note that against the subdivision :

'heating-surfaces, increasing'

in the Subject-matter index there are listed four specification numbers. The abridgment of the first of these specifications, viz. 561,749, states that 'The bottom of a cooking vessel is reinforced by a compact mass of finely divided metal bonded together by sintering, etc.' There is no specific mention of a frying-pan and hence the specifications could not have been classified under 'frying-pans', and yet the term 'cooking, etc., vessel' is broad enough to make this specification of interest to Mr. X.

Should it be that Mr. X has had his interest widened in the direction of corrugation of the bottoms of analogous utensils, then he will find in the Subject-matter index a subdivision :

bodies

with six specifications listed against it, but without further subdivisions. When the number of abridgments to be looked at is reasonably small, finer subdivisions are not disclosed in the Subject-matter index. Glancing at these six abridgments, Mr. X discovers that only one is of interest to him, namely : 572,551. It is headed 'Metal cans for food, etc.', and in the middle of the abridgment is the statement that : 'Ribs or corrugation strengthen the base, etc.'

Mr. X has now finished with this particular volume, and will work back through previous volumes of the same Group XVII until he has consulted the volume for the period 340,001-360,000 which was published in 1932. This is the earliest period covered by the so-called 'Group-series' of abridgment volumes. Should he be interested in earlier specifications, then he will consult the appropriate volumes of the 'Class-series' of abridgment volumes. That is, he will look at the volumes for Class 66. Each such volume covers a period of approximately five years and the series cover all specifications accepted from 1855 up to 1930. There is a slight overlap in the coverage of the last volume of the 'Class-series' and the first of the 'Group-series'.

Subsequent to specification No. 580,000, the abridgments are in loose sheet form, they have not yet been bound into volumes, and Subject-matter indexes for them have not yet been printed. The sheets at present issued give coverage up to specification No. 616,000. Mr. X will have to scan the sheets in Group XVII for all abridgments marked Class 66 and then peruse each such abridgment.

Mr. X has still to cover the period from Specification No. 500,001 to 560,000, that is a gap of 60,000 specifications corresponding to the war years when no abridgments were published, and also the period from specification No. 616,000 up to date, which period is a further gap of

about 50,000 specifications. These gaps are being closed as quickly as printing facilities and paper availability permit.

In the Patent Office Library he will find boxes of manuscript sheets listing all specifications accepted from No. 500,001 to date. For the period 500,001 to about 535,000, these sheets are collected in boxes numbered to correspond with the abridgment group volumes. One or more sheets are devoted to each heading that appears in the Group Volume and on each sheet are listed specification numbers annotated with classification marks. Mr. X will look down the sheets headed 'Hollow-ware' and will make a note of all those specification numbers against which appears the mark D7d, this being the classification mark for 'frying-pans'. Alternatively, if he is interested in corrugated bodies he notes those specification numbers to which is assigned the mark D1a1 or, if he is interested in increasing the heating surfaces, then he will note those with the mark D1d.

Subsequent to specification No. 535,000, the procedure is very much the same, except that he will peruse all sheets in a box for Class 66. These sheets are kept up to date by addition thereto each week. After compiling his own small list of specification numbers from these sheets, he will consult the copies of the specifications.

In the *Official Journal (Patents)* there appears each week a Subject-matter index of complete specifications that we advertise as accepted that week. This Index quotes headings corresponding to those in the *Classification Key*, but does not disclose any subdivisions thereof, and these headings are not arranged by classes but are arranged in alphabetical order. For a search extending over a considerable period, it is more tiresome to use these weekly indexes than to use the lists kept in the Library.

Earlier in this paper I mentioned that under the heading 'Hollow-ware' there were a number of references to other headings and classes. These references are of a *subtractive* nature and indicate that certain matters are *not* classified under 'Hollow-ware' but under other headings. They constitute safeguards to a searcher who, not unreasonably, considers that this heading includes that which he is interested in when in fact it does not.

Let us suppose that Mr. X is chiefly interested in means for examining frying-pans for leaks. Had he looked in Part I of the Key under 'leaks' he would have found a reference in the form: 'Leaks in structures, Detecting, *See*

'Testing strength, etc., of hollow-ware, etc.'

This is a heading in Class 106 (ii). But as it is quite fortuitous whether he looked under 'leaks' or under 'frying-pans', he might have followed the route previously described and deduced that Class 66 was the correct class for such matter. However, under the heading 'Hollow-ware' he will find the references:

'testing *See* 106 (ii) Testing strength, etc., of hollow-ware, etc.'

and he should read this as implying that *no* specifications describing the testing of hollow-ware are classified in Class 66 but are classified in Class 106 (ii).

BENNETT : CLASSIFIED PATENT SPECIFICATIONS

Had Mr. X been interested in some other subject than 'frying pans' he would have proceeded in the same general manner, although if his subject had been more erudite, he would have spent more time in careful reading of the various references and subdivisions.

I will now say good-bye to Mr. X and devote a little time to some of the basic features of the Classification of Patents. The fundamental unit is the heading ; several related headings may be collected together into a class, and each heading, if it contains sufficient subject-matter, is subdivided to a greater or lesser extent.

I wish to stress the effect of the references that are placed under many of the headings, they are subtractive. If the matter in which the searcher is interested is adequately described by the wording on the left-hand side of the reference, then such subject-matter is only to be found in the heading quoted on the right-hand side of the reference, and will not be found in the heading under which such reference occurs. *Excepting* notes are a form of reference placed immediately under a heading. They exclude matter that otherwise would be included. An example can be found in the previously considered heading 'Hollow-ware' in Class 66. Immediately under this is a note :

Excepting Class 6 (u) Flowers, etc., plants, Pots, etc., for growing. A flower-pot could quite easily be considered to be 'hollow-ware', and a searcher could expect to find a provision for flower-pots under the subdivision 'kinds or types'. However, in the agricultural Class 6 (ii) there exists a heading for these articles and hence this *Excepting* note is placed under 'Hollow-ware'.

Some of the headings dealing with complex subjects have notes (printed in italics) that start with some such words as '*This heading comprises only, etc.*', and thereafter follows a brief résumé of the subject-matter classified under such heading. Alternatively the notes may state that '*This heading does not include, etc.*', followed by a statement of allied technical matter that are classified elsewhere.

All the *Excepting* notes, references, and italic notes should be read carefully by a searcher so that he is sure that he has found the heading of interest to him. In a few instances there are statements that some subject-matter '*is also indexed under*' some other headings. Such statements are of little interest to the searcher. They are directions to the Examiner when classifying a specification that certain small pockets of subject-matter are to be classified under two distinct headings so as to facilitate such matter being found by a future searcher.

Patent specifications in this country are often classified from several points of view. If any one specification is of interest to more than one heading or more than one subdivision of any one heading and there are no subtracted references to prevent it being classified in any of these headings or subdivisions, then such specification is classified under all the pertinent headings and subdivisions. It is not unusual for any specification to be classified under five or more headings or subdivisions. Some headings have been subdivided in such a manner that they provide

what might be termed a multi-dimensional system of classification. An outstanding example of such a system is the subdivision of the heading 'Electric heating' in Class 39 (iii) whereunder one set of subdivisions is directed entirely to the means by which electrical energy is converted into useful heat, and another set of subdivisions is directed entirely to the nature of the article or material heated. Thus nearly every specification classified under this heading is doubly classified according to these two features.

In the main, the classification system adopted by the Patent Office tends to look at the disclosures in patent specifications from the general aspect rather than from the particular application point of view. Thus : 'mixing machines'

are all collected into one class (viz. 86) irrespective of whether they are designed for mixing concrete, or dough, or the hundreds of other things that can be mixed. The heading for 'Mixing, etc., agitating machines' is finely divided according to the type of machine and the operating details thereof and *not* according to the material mixed.

Mr. Mathys has shown us the wealth of information contained in patent specifications, and I hope that I have indicated how any one interested in a specific subject can gain access to those specifications disclosing such subject. Before the war, the Group abridgment volumes were available in a bound form together with their Subject-matter indexes within two or three months of the acceptance of the last abridgment printed therein. Also the loose sheets of the current volumes were available about four to six weeks after the acceptance of specifications abridged therein. It is the aim of the Patent Office to close the gaps for which no abridgments exist as soon as possible, and so to restore the fine service provided before the war. And it may be that some of the expedients used to bridge the present gaps in the abridgments will eventually enable the Patent Office to give an even better service in the future.

The Chair for the meeting was taken by Mr. E. B. UVAROV (Courtaulds, Limited), who introduced the speakers and said that the papers would be a very valuable contribution in a field where little had been published before. Members of Aslib were concerned with handling technical information, and patents provided a part of this information ; the other aspect of the subject was seen by those who handled patents all the time and technical information was a part of their work. He then asked Mr. Mathys to read his paper, and afterwards asked Mr. Bennett to follow with his paper.

After the two papers Mr. Uvarov asked Mr. Gravell to open the discussion.

Mr. F. W. GRAVELL (Chief Librarian of the Patent Office) said that he hoped in a few words to stimulate questions and criticisms from the audience. He felt that some explanation should be offered for the change in the method of publishing abridgments which was made in 1931. Before this date abridgments of patents were published weekly in numerical order in the *Illustrated Official Journal of Patents*. These same abridgments were subsequently published in 146 subject classes together with a classified index ; each abridgment volume covered a specified period. In 1931 the numerical series in the *Official Journal* was discontinued and in order to provide for a frequent and regular publishing of all the 146 abridgment classes, these classes were formed into 40 groups of related subject classes. The Abridgment GROUP is an arrangement for convenience in publishing, the official patent search is still based on the old classes.

DISCUSSION : PATENTS

The Patent Office Library contained practically all that was published from patent offices overseas. The foreign patent collection was dependent on the provision made by each country and there was therefore no provision for subject search comparable to that provided for this country. Some European countries print the subject class mark on each complete specification and, before the war, duplicate sets were maintained in classified order. Now only German specifications were available in classified order.

Mr. Bennett had explained that the British classified abridgment system met the fullest needs of the searcher by repeating the abridgment in every class, and the number under every subject heading, as far as the subject matter of each specification made this necessary. This multiple allotment of class marks is now printed on the specification. Foreign specifications are different from the British in that, where the class mark is given, there is only one allotment mark. The duplicate set of classified German specifications is, therefore, only a 'one place' classification, and does not provide for cross-referencing of specifications.

Mr. Gravell regretted that, in providing for the public search during the war years, it had been necessary to introduce the Patent Office examiners' class marks. The public search was thought, before the war, to be best provided for by the printed abridgment class with classified subject index. The examiners' marks were peculiar to each subject class and did not present a comprehensive notation. He did not think that these marks were originally intended to form the basis of a general subject search by the public. The subject search in the Library, and by means of the *Official Journal (Patents)*, was under review and he was open to receive constructive criticisms and suggestions. He felt that patent information could be viewed as centering around two points; first, the grant, when the interest concerned the extent of the monopoly and the possibility of developing round and beyond the limitations imposed; second, the end of the monopoly, when the subject of the grant became public property, a 'manner of manufacture' free for all to use. It was quite possible that the present methods used by the Patent Office in giving to the public information about patents might not be the best from the users' point of view, and the Office was prepared to consider suggestions for making the information more readily available.

MR. BAINBRIDGE BELL had two questions to ask: was there available, or would it help the staff in the Patent Office if there was, a simple guide to searching patent literature; perhaps a very condensed version of to-night's papers? Secondly, was there any way in which a provisional specification, which was not proceeded with, could be made available? He also paid a tribute to the kindliness and efficiency of the Patent Office staff.

MR. GRAVELL replied to the first question that such a guide to searching in the Patent Office had been projected for at least three years, and such a document would be made available at the first opportunity.

MR. MATHYS replied to the second question that the publication of abandoned provisional specifications had long since been discontinued and, he hoped, would not be resuscitated. The system permitting the filing of a provisional specification was peculiar to United Kingdom law and was a very good one. It gave the inventor twelve months' potential protection for £1, and so there could be no complaint that an inventor was unable to protect his invention from lack of money. In present-day research it was impossible to tell what inventions would be of commercial value. A rough estimate was that not more than 10 per cent of them were ever successfully followed up, and provisional specifications gave protection while further work on the subject went on but could be abandoned with the knowledge that there had been no publication.

MR. BAINBRIDGE BELL explained that his interest was rather in the opposite direction. He had taken out a provisional patent which had lapsed, and he wanted to publish the details of his invention in order to prevent anybody else from exploiting it.

MR. MATHYS suggested that if he could not get an article published in a journal he could send the description of the invention to a number of firms and keep a record of this which would constitute publication.

MR. GEO. H. DAVISON (United Steel Companies, Ltd.) said he could not help but wonder how one could justify describing patents as a source of information until we again had effective indexes in the provinces. He was, of course, aware that, thanks to

the increased facilities now at the disposal of the Patent Office in the form of additional staff, there was a possibility of name indexes becoming up to date in something like twelve months, but the position was far different as regards published subject indexes, which were linked up with abridgments. The latest information which he had received was that less than one-third of the abridgments of the 60,000 war-time patents had yet been published, while a start had yet to be made on the first 40,000 specifications issued since the war, as the attack on the arrears of post-war specifications only began at No. 600,001. He understood that the arrears of current abridgments now stood at approximately 60,000. His estimate, therefore, was that it was likely to take at least four to five years before all the accumulated arrears had been overtaken.

Many were aware of the existence of the Aslib Patents Sub-committee and of the efforts which it had made to help the Patent Office over this backlog. The major obstacle was found to be shortage of staff in the Patent Office and he understood that the additional staff required had now been obtained. This had helped the Patent Office to accelerate its production of current specifications, whilst due to special arrangements with H.M.S.O. (whereby name indexes were now printed under separate contracts from those of abridgments), it had been possible to release name indexes much faster than the corresponding volumes of abridgments. The position of name indexes therefore was much more promising than that of abridgments, although we had not yet reached our goal with name indexes.

With the permission of the Chairman, he would like to enlist the support of the audience for a proposal which had been made to the Patent Office in connection with abridgments. The Committee at first asked for consideration to be given to the provision of photo-copies of the Patent Office library indexes to be made by airtyping-size enlargement from microfilm but in view of the expense they were not now pressing for this. Instead, it was suggested that if the Patent Office could complete its name indexes by the end of 1952, the Committee would be satisfied with this rate of progress and concentrate their efforts on obtaining a subject index even if only on microfilm. It was doubtless well known that Mr. Gravell had in the Patent Office library a collection of class index sheets from the outbreak of the war, probably numbering about 4,000. This contained lists of patent numbers under the respective classes but without any other description. He learned authoritatively that it would be possible to prepare a microfilm copy of these lists for something like £27 but that positive film copies could then be made from this master at a cost of £8 4s. 8d. per set. Therefore, if the cost of the master were divided by the number of repository libraries and the cost of the positive copy added thereto, the cost would work out at less than £10 per library. Surely this was not too expensive a matter to face for twenty-one repository libraries so as to give people living outside London the facilities which they used to enjoy pre-war, particularly when one considered that the income of the Patent Office was not far short of one million pounds per annum. It had even been suggested that it would well repay the Patent Office in any case to have a microfilm copy made of the existing subject index sheets, if for no other reason than as a safeguard against loss or further deterioration of this unique set of index sheets. He hoped that he could count on support of these proposals.

Turning to another matter connected with patents, Mr. Davison referred to a discussion on a paper which he gave recently in Sheffield on 'What an Industrial Librarian should know about Patents'. Arising out of this he had been approached by Leeds Public Libraries to see if the Aslib Patents Sub-committee could intervene on their behalf with the Patent Office in connection with German patents. Prior to the war, Leeds was regarded as the centre of the industrial north for German patents and held a complete set together with indexes, of which very great use was made. On 3rd September, last year, the German Patent Office in Berlin wrote to Leeds reminding them of the pre-war arrangements under which Leeds were sent all German patents from No. 268,798 of 1914 to No. 681,788 of 1939 and offering to supply all the German war-time specifications missing from the Leeds collection in return for six annual sets of British patent specifications. This offer was at once communicated to the Patent Office by Mr. Hutchings on 1st September, 1951, with a strong recommendation of its acceptance. Despite a subsequent reminder, no decision had been given although a letter dated 1st December, 1951, was received by Mr. Hutchings stating that the earlier letter of 12th

DISCUSSION : PATENTS

September had been mislaid but was now receiving attention. Mr. Davison submitted the correspondence to a recent meeting in Manchester of the Northern Branch of Aslib and was authorized by them to press this question on behalf of Leeds Public Libraries. These interminable delays were, however, difficult for Northerners to understand and he invited the meeting to advise him on what steps might usefully be taken to resolve the problem.

In fairness to the Patent Office, he felt he must point out that, quite apart from this German approach, the Patent Office had made arrangements with Leeds to furnish photostat copies of any German patents in their possession on request. This meant, however, that specific patent numbers must be quoted and as Leeds did not possess any indexes of German patents since the outbreak of the war, it was very seldom that use could be made of this facility. On the other hand, the offer of a complete set of German war-time patents was one which would go a long way to restore the former usefulness of the Leeds collection of German patent literature and therefore should not be ignored.

Mr. UVAROV replied that the representatives present from the Patent Office might have preferred to have had notice of Mr. Davison's question, and hoped that acknowledgment of its receipt would be sufficient for the time being.

Mr. B. AGARD EVANS (Ministry of Works) said that the Ministry of Works Library attempted to survey the building field except for material included in *Building Science Abstracts* and at one stage included patents. They obtained all the relevant British specifications and published summaries of them in U.D.C. order as a supplement to the Bulletin for three or four years. This had now been abandoned but had left a gap in building information services, and he suggested to Mr. Davison that a similar scheme might be operated in Sheffield for the steel industry, making them independent of the Patent Office abridgments. The cost might be about £600 per annum.

In The Hague he had been impressed by the Patent Section of *Batnafsche Import Maatschappij* which summarized world patents for member firms, again using the U.D.C.

Mr. K. B. SHAW (British Scientific Instrument Research Association) asked if a point could be cleared up concerning provisional applications. If a provisional application was lodged it established priority; when it lapsed could it be made available to the public?

Mr. MATHYS replied that if a provisional patent was abandoned, some form of publication or proof of commercial use was necessary to prevent another person patenting the idea. In this country the first inventor to file an application at the Patent Office was granted the patent; in America an attempt is made to grant the patent to the one who first made the invention and research workers had notebooks in which they noted ideas and had these dated and witnessed. The possibility in this country of establishing a date by filing a provisional specification which could be subsequently abandoned or pursued was very important.

Mr. H. R. LINDSAY (Thorn Electrical Industries) said that in searching French and German foreign patent literature it was convenient to find all the patents in one class together in chronological order. In abstracting patents he had often found the principal claim and one or two subsidiary claims sufficient to act as basis for a short description. They gave the gist of the invention without the work of summarizing the specific description.

Mr. BENNETT, in reply to the first observation, said that specifications could be put into bundles, but the British method of classification involved duplication, and limitations of space in the Patent Office Library ruled out this method. Its usefulness was undoubted, and the examiners did in fact keep their specifications in such a way.

Mr. MATHYS, replying to Mr. Lindsay's second statement, said that he agreed that it was possible to use the claim to get information about the content of the patent; a British claim did give a brief summary but the specific description was the main part to look at, and it depended how much information was required.

Mr. BENNETT suggested that one way of dealing with delays in publishing abridgments could have been to print them on the end of the full description of the patent specification.

Mr. C. W. HANSON (British Scientific Instrument Research Association) asked

whether patent examiners demanded evidence in support of the subject matter of the patent. If he read a patent describing an alloy claiming to increase creep strength could he take it that there had been expert examination, or must he read it with a large grain of salt?

MR. MATHYS replied that in the United States, Germany, and some other countries the examiner could demand evidence, while in France and Belgium no examination was made either by searching for novelty or checking the technical details. In this country we had evolved a compromise, the examiners carried out a search for novelty, and recently the Patent Office had been given very limited powers to check whether or not there was any technical advance. But the real test could only be made in a Court of Law.

MR. HANSON asked whether one could patent a guess.

MR. MATHYS replied 'Yes', if it were considered worth spending £25-£30 to get it done.

MISS R. M. JACOBS (Department of Scientific and Industrial Research) asked why it cost £25.

MR. MATHYS replied that there was an application fee and certain other fees and also professional fees in obtaining a patent. Subsequently there were annual renewal fees totalling up to £125, which were paid to the Government.

MR. UVAROV closed the discussion by voicing the meeting's appreciation of the papers, and estimated their importance by remarking that in future people engaged in using patent literature would doubtless be referred to the report of this meeting for information.

Additional contribution by MR. GEO. H. DAVISON (submitted in writing subsequent to the meeting).

'Mr. Agard Evans suggested that the various firms in the steel industry in the Sheffield area might collectively get all the patents on the steel industry as they become available and publish abstracts of them.

'Although obliged to Mr. Agard Evans for his desire to be helpful, I must point out that my own library (The United Steel Companies, Limited) already purchases copies of every British Patent Specification in its field. These specifications are then abstracted by us and copies of the abstracts circularized to our key staff throughout the Combine. Further, we have a Metallurgical Classification of our own and keep copies of these abstracts in such classified files so that whenever we need information on any particular subject covered by patents, we have immediately available a complete file of abstracts.

'On the other hand, our interests have of late years expanded beyond the purely metallurgical, in that we now have to cover engineering specifications as well. Under these circumstances, we have to depend on the Patent Office indexes for the past and as these indexes are not available to us in the Provinces for several years subsequent to 1939, I still consider that my verbal criticism is justified, namely that until we have a key to the buried treasure, its usefulness as a source of information is largely non-existent.'

INFORMATION SERVICES AT WORK

By K. BOODSON

Division Librarian, I.C.I., Ltd., Metals Division

Birmingham, 23rd January, 1952

IN PRESENTING this paper on 'Information Services at Work', I would like to stress that we are appealing very largely in this type of meeting to the younger members. While hoping that they will benefit by hearing of other people's experiences and methods, we still look to them for fresh ideas and even more for criticism of old ones. In due course these budding library assistants will have become blossomed and blown information officers and it will be too late; like us, they will then have become convinced that there is no better way of doing things than their own. You will notice that I have presumed a development from library assistant to information officer. The library must be the foundation on which the information service is built, and to my belief, a library training is essential to anyone in information work. In any case, it is obviously not possible to draw a rigid distinction between the library service and the information service, nor to say where the one begins and the other ends. There is only one thing to be stressed; that the guiding force, whatever the type of organization which is found, must be the requirements of the company, association or other concern served by the information unit. No theoretical ideals or rigid adherence in the application of library science should be allowed to jeopardize this prime consideration. One further introductory point. I have noticed that matters technical tend to dominate almost exclusively any discussion of the work of an information officer. This is perhaps natural enough, but I hope to suggest to you that there exists a much wider field of activity. Information services must be considered as covering the whole of the parent body's interests and not only those on the technological side.

The work of an information service can perhaps best be examined under three broad headings—(a) collection, (b) recording and (c) dissemination. Let me say here, perhaps in apparent contradiction to an earlier statement, that I have deliberately excluded from this paper all matters of general library technique. Thus in using the term 'collection' I am referring for a moment collection in a library sense, accessioning, which can really be the equivalent of that accessioning, but of course the information worker—the general process of collecting information—knowledge and experience. The ability to collect information is very largely the projection of the worker's own ability. In acquainting himself thoroughly with the work, he must meet those with whom he is working and should train himself to establish in his own mind a clear regard for the information department.

This is important in deciding how much assistance can be given to the different types of enquirer, how much time can be spent on their enquiries. One gets to know the member of the staff who has long arguments over the lunch-table, ending with a bet which is referred to the Information Department for decision. One learns to separate the man who gives you his enquiry with all its background, from the one who must be prodded and chivvied into releasing what to him seem irrelevant points, but to the information officer are possibly important side leads. One finds out those who regard the Department merely as a forlorn hope when everything else has failed, and those who appreciate that it is beyond the ability of any one individual to do his own job and keep abreast of all developments related to that job, and who realize that a specially trained and organized staff can do this for him. His experience and personal knowledge will enable the information officer to classify along these lines and adjust his reactions accordingly. Suitable propaganda treatment will in any case gradually widen the circle of initiates. Perhaps, indeed, it is a truism, damning though it may be to some of us, that an established information service gets the clientele that it deserves.

The information officer should make a practice of paying periodical visits to the various sections of the organization. This is valuable in renewing old personal contacts and establishing new ones, and in obtaining a degree of reciprocity in the supply of information. On such visits facts can often be gleaned which will serve to enlarge his knowledge of the company's activities and plans, and often give a useful lead to new lines along which the Information Department can be of assistance. This is but one side of the main business of collecting information—an essential corollary to the whole problem of familiarizing himself with the contents of books, reports, both of his own and other concerns, statutory instruments, daily newspapers, technical journals—not forgetting the advertisements—and other miscellaneous sources, and extracting from them that part of their contents likely to be of use to his concern.

In an information unit such continuing assimilation by each member of the staff, this broadening of their individual knowledge and experience is a reflection of the life and vitality of the service. Whatever the efficiency of its routine methods and the extent of its resources, it cannot efficiently function without the pervasive direction arising from such co-ordination. Nevertheless, we must arrange that this weak point of defence should be made permanently available, leading naturally to the consideration of the next chapter of information business—indexing.

The extent of recording and indexing is always a problem. Attempts have been made to relate expenditure on such work to financial gain, with a view to deciding how much should be used for such work. It is an impossible task to reduce the concrete and abstract to a common denominator. It is similarly impossible to postulate fixed limits on such expenditure. Once again it must be directly

BOODSON : INFORMATION SERVICES

bearing in mind to what extent similar and possibly duplicate work is being done by others. From a practical point of view the amount of indexing which can be undertaken will frequently be limited by the staff available. Two general rules might be considered ; first, cater by local indexing only for what is not readily and conveniently available elsewhere. This introduces the time factor. One of the chief complaints of the feverish protagonist of full indexing is the delay in the appearance of abstracted articles in the published abstract journals. How far this is a factor seriously to be taken into consideration is, I think, debatable, and once again is a question of relating expenditure to results. Would that it were a clear-cut issue—full indexing and prosperity on the one hand, no indexing and bankruptcy on the other. But it is not. Nor, bearing in mind the division of opinion on the subject, can there exist obvious pointers to a solution. What I would claim is that nothing can in this country, except on a national level, justify the establishment of an intricate indexing system which has no other function than to index and record published literature. This leads me to my second general rule, that the real and vital part of an index is that which covers unpublished and undocumented information. Obviously for inclusion there are the company's own reports, technical, development and market surveys, reports of visits made by members of the company staff, and so on. Then there is the mass of trade literature, catalogues, customers' specifications, and possibly newspaper cuttings.

In a separate category is correspondence. The problem of relating work entailed to possible usefulness is even more difficult here, and must depend on the experience and personal decision of the information staff. It may in any case prove quite impracticable, owing to the actual organization of the company. The subject matter in correspondence is largely routine or based on already known and presumably indexed information, or else is of sufficient importance to entail the preparation of a separate report, which will itself be indexed. But there are other categories. A foreign customer sends to the Sales Department a written complaint concerning a new type of corrosion staining on aluminium components. This is acknowledged and forwarded to the Research Department, who in due course inform the Sales Department by letter that the staining is caused by a type of grease in the proofed paper used in wrapping the components. This, it is suggested, only occurs in tropical conditions of temperature and humidity, and it is recommended that, in such cases, the components should be despatched in heat-sealed plastic containers. The Sales Department advise the customer accordingly, and a separate Research Department report on the investigation may or may not be issued, according to the established practice ; but the essential points are covered by the correspondence. Without doubt the Information Department index should include, with its other information on the behaviour of aluminium in humid climates and on packaging of aluminium components, a reference to this correspondence. Such cases as these justify the introduction of a qualified and selective method of bringing corres-

pondence within the scope of the index. This is accomplished in some concerns by establishing a central filing system attached to the library and information unit, so that concluded correspondence is scrutinized and selected for indexing by the information staff before filing. This is not always practicable and alternative methods are either to arrange for office copies of correspondence, selected at the discretion of the originator, to be sent to the library, or else for concluded correspondence to be circulated to the library before being returned to the originating department for filing. Neither of these is completely satisfactory, the first because it covers only the out-going side of the business, and the second because it removes from the indexing centre the responsibility for housing and filing the indexed material. It is a matter which will be decided by local conditions and the assiduity of the information officer.

Referring back to my example, the sales organization might wish to suggest to the customer a suitable form of heat-sealed package, and would then probably ring up the Information Department for names of appropriate manufacturers. This leads me to three further considerations in relation to the scope of the index: firstly, telephone conversations, secondly, enquiries in the Information Department, and, thirdly, the question of correlating different types of information. In recording and indexing the 'meat' of telephone conversations, as with correspondence, it is essential to use discrimination and strict control. In the example of the heat-sealed packages it might be found that the information was not available in the trade directories, and the names of the firms had to be obtained from current advertisements or technical articles. In this case a note of the sources and results should be made and indexed, although the actual business has been conducted by telephone. This is complementary to the second point which I mentioned, the question of enquiries in the Information Department. These will be in all forms, sizes and shapes, and it is axiomatic that certain of them will be recorded. Primarily, of course, there is the literature survey, which presents few problems; there is generally a prepared bibliography and some related correspondence. Another type of enquiry usefully indexed is that entailing a search for specific facts which, against one's expectations, do not appear in the general reference works. I am thinking, for example, of data on physical properties which can often be obtained from *Chemical Abstracts*, but which are frequently not included in the standard textbooks. I have also mentioned the question of relating different types of information, perhaps an obvious but rather neglected side of routine indexing. In our example above we had to consider a research department report, correspondence, a telephone conversation and an information department enquiry. In due course each appears in the index, and the entries should carry inter-connecting reference notes, so that the four sides of the business are linked. As the chances are that the whole matter would continue through a period of weeks, and probably be dealt with by different assistants, this requires a degree of supervision and co-ordination.

These then are the main pipelines through which are fed data on what

BOODSON : INFORMATION SERVICES

we earlier called 'unpublished and undocumented' information. How far indexing and recording will cover 'published' information, abstracts and references to technical literature, is a matter for local decision in relation to the type of organization. It is also inevitably tied to the question of abstract bulletins, which I shall touch on later.

We have dealt briefly with the acquisition and recording of information. I would like now to pass on to the problem of making this information available, either unrequested as part of the routine work of the Information Department or, secondly, supplied to specific requests. The first I approach with some trepidation, as it brings in two very old friends, abstract journals and circulation of periodicals. I think that in discussing the former we might remove the term abstract, and consider something wider under the general heading of 'information bulletins'. In an established information department, some form of regular dissemination must be adopted. In the most elementary form, with a small compact unit, it is possible that this can be by personal contact between the Information Officer and the staff concerned. This is exceptional, however, and generally speaking the vehicle must be in the form of a regularly circulated bulletin, supplemented by such personal contact. Once again the type of organization and its needs will be paramount in deciding the type and contents of the bulletin, but I would suggest that it is not necessarily confined solely to technical information. Factors such as the existence of separate sales department circulars, the extent of internal relations publicity, and so on, have to be considered in deciding this. In its fullest state, however, and independent of such factors, an information bulletin might include matters under the following headings :

- (1) Industrial. This includes selected notes on industrial matters affecting the company's interest, such as legal cases, wage awards, union disputes and agreements, statutory instruments.
- (2) Commercial. Information on relevant customs regulations and tariffs, exchange rates, import and export quotas.
- (3) Business. Changes in addresses, personnel and style of companies, formation of new companies, notes on the activities of competitors, etc.
- (4) Company news. Details of any press announcements about the company, notices of changes in the structure of departments or of personnel, visits, etc.
- (5) Technical information.
- (6) Miscellaneous. Local meetings of interest, papers to be read, etc.

Headings (1) to (4) and (6) would on their own provide sufficient material for a substantial bulletin, even with fairly rigid editing, and without (5). But what about technical information? If the bulletin is the service channel between the Information Department and the staff, it cannot exclude technical matter. How far is there any justification for diverting time, labour and materials to the preparation of abstracts for this side of the work? The *List of periodicals and bulletins containing abstracts*, issued by the Royal Society in 1949, includes 127 publications, and on the face of it there is no justification for issuing an abstract bulletin

on the grounds that it is not already done. The interdependence of all branches of science is tending in any case to reduce the effectiveness of highly specialized selections of abstracts. The corrosion expert is interested in bacteriology, the metallurgist in the fastness of dyes, the aircraft designer in the heat treatment of resins. Perhaps only an Information Department thoroughly familiar with the needs of the organization can make the necessary selection and avoid over-feeding the staff with irrelevant information. Then there is the question of delay. Can the service afford to wait two or three months before an abstract appears, when with a properly organized bulletin the information could be made available within a week or less? These are but some of the points in deciding whether information requirements can be served by what abstracts already appear, whether the technical side of the information department circular should be used to include a selection of these, or whether the staff concerned should receive the actual issues of the abstract journals. I would suggest that there is a happy compromise by including in this technical section descriptive notes rather than detailed abstracts. These would describe the scope of an article, the manner of approach of the author, and method of treatment of the subject. This entails considerably less time and labour than the preparation of an accurate and satisfactory abstract, and yet gives a member of the staff sufficient indication of whether it is worth his while seeing the original. Very frequently this is all that is accomplished by the abstract. There is no doubt that, if a bulletin is issued, and in whatever form and style, it becomes an important part of the information resources for incorporation in the index, and its format can be adjusted accordingly. One method is by typing each item so that the matter lies within the space of the standard index card. The required items can then be either cut from stencilled spare copies of the bulletin, or else hand duplicated straight on to the cards. Though convenient, this does not produce a very readable layout in the bulletin where 5 in. by 3 in. cards are standard for the index.

The need for circulation of journals will be determined perhaps more than anything by the topographical layout of the organization serviced. It may be dispensed with in a compact unit with a central library, or by a unit whose management will agree to supplying as many separate copies of periodicals as may be required for the different departments and sections. It must be considered in relation to the bulletin problem, and a case can be made out for stating that an efficient abstract bulletin, combined with adequate distribution of separate copies of the main journals, will dispense with circulation. In an efficient service this will, of course, immediately treble or quadruple the number of requests for loans. It is then debatable whether the time and labour required, and inconvenience involved in the absence of material from the library files, will not be greater than that due to circulation. Whatever the solution reached, making the staff aware of the contents of scientific journals must be considered as a most important side of the information work, and the evil of journal circulation must be accepted where necessary.

BOODSON : INFORMATION SERVICES

To supplement these major methods of letting the staff know what is going on, it should be considered part of the Information Department's work to examine the daily press, both national and local, and send out to those interested suitable cuttings. Newspaper cuttings are the Cinderellas of our information resources, and by their very nature do not justify a great deal of work in handling them. But such items as reports of legal cases, factory accidents and compensation cases, annual meetings of competitors, labour and material surveys, reports from overseas correspondents on market conditions, reports on home industries, etc., are worthy of inclusion in the general process of dissemination.

These, then, are some of the methods and techniques used in that part of the service which caters for the routine and regular distribution of information in one form or another. No less important is the provision of information to specific requests. This field of activity is perhaps the proving ground of the service, a penetrating detector shadowing its soundness and its weakness. It is an assessment of the effectiveness of those routine methods which we have mentioned, and of the impact on these of the personality and experience of the Information Officer and his staff.

In this, more than in any other side of the work, the Information Staff will be called on to wander from their apparent and particular branch of science to cover the whole range of knowledge. In my own unit, with non-ferrous metals as our dominant interest, we once had to find out the names and obtain illustrations of as many flowers as possible that had green blossoms. This was actually in connection with an advertising campaign. You must, as I say, expect enquiries on anything, and be prepared to find an answer, either from your own experience and resources or with the help of somebody else's. Let me stress here, in regard to all enquiry work, that you should take great pains to obtain the maximum of useful guidance from your enquirer. Find out the background to it, how the query has arisen, what he is aware of already, what amount of information is required, and so on.

I hope that I have not led you to expect now an outline of a *General Handyman's Guide to the Answering of Enquiries*. This is a matter for which there are no rule books, formulæ or codes of practice. There are, of course, standard tools for the job, and routine approaches to different types of enquiry. Becoming familiar with these is part of the assistant's training. But, actually, the only person who can say what is the best way of tackling an enquiry is the man on the spot—the man who knows the resources of his own unit and can call on his experience to use these effectively. In any case if this matter could be tackled by any rule-of-thumb method, if there were any general panacea to be prescribed or golden rule to be followed, I am sure that there are many others better qualified than me to lead the way. Perhaps in this respect we members of the larger organizations are rather spoilt. Not only have we our own information units, but also those of other branches of the company, with perhaps Head Office Intelligence Departments including specialist sections and a

centralized technical index service and report file. An extremely comprehensive coverage is available in this set-up, not only in material resources, but also in the number of specialists who can be called upon. Unfortunately, it rather tends to minimize what is perhaps the most valuable part of an information officer's training, the real importance of having to find out for himself. Nevertheless, the provision of a maximum service to one's staff must always be the ideal, and our combination of independent Divisional information units, co-operating directly and through a central unit, does, I think, provide this service at a high level. In any case, I think it is gradually becoming accepted that co-operation is the only possible approach to this ideal. The growth of organized information services in industry has been accelerated by a realization that only through them is it possible to select and convey to the specialist a suitable proportion of the mass of information that is now available. The stage has been reached when even the staff of such a unit cannot continue unaided to service their parent body effectively. That this is generally accepted is indicated by the growing spirit of co-operation among workers in specialist libraries. We of all people are aware of the huge flood of reported data, and of the problems of bringing into practical use that part of it which will directly or indirectly increase our company's profit and its technical efficiency, and the country's standard of living. To these ends the growth of co-operation, both on a personal and on a unit level, is most desirable. Used practically and sensibly, and subject to certain necessary safeguards, such mutual aid should tend to raise the effectiveness of the service of all participants.

I have attempted to show you, though in a broad and necessarily elementary form, the methods by which an information department acquires and stores that part of knowledge which is selected as being of use and interest to its parent organization, and have discussed methods of making this available. Underlying all there is the human element. Largely automatic though a part of the department's routine may be, the abstracting, filing, indexing, and so on, this personal factor, the guiding influence of the staff in the approach to this knowledge, will inevitably decide how accurate is that estimation of the company's need, how efficient the correlation which will enable the maximum service to be given. I believe that there are in hand in America plans for an electronic index of information along the lines of the electronic computer and differential analyser. Perhaps our ideas of co-operation on a national scale in a comprehensive linked scheme for all specialist information on any branch of science will be cut from underneath our feet. In its stead will be a colossal centrally housed electronic index, able to produce, at the touch of a button or the movement of a dial, any required technical data or a list of references to published information on any required subject. Possibly we can even by-pass the publishing side by arranging for any new data on original research to be fed straight into the machine. The Information Officer will have become an Instrument Maintenance Engineer, and such minor pleasures as the presentation of papers at library meetings will have passed into the archives.

TEXTILE TERMS AND DEFINITIONS

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Vice-president, The Textile Institute

Manchester, 25th January, 1952

THE TEXTILE Institute was founded in 1910 and granted a Royal Charter in 1925. The aims and objects stated in the Charter include :
‘To constitute an authority for the determination and recognition of technical and trade standards, usages, terms, definitions and the like for the textile industry.’

Precise definitions are, of course, highly important in industry. They may enter seriously into commercial questions including tariffs, and few industries appear to suffer more than the textile industries from loose terminology. There is, for example, the vexed question, ‘What is wool?’ What minimum percentage of wool must there be in a cloth to justify its description as ‘wool’ or ‘woollen’? To frame a standard definition in such a case involves, therefore, (1) a form of words and (2) a number capable of measurement.

There are several arguments against including numbers in textile definitions. They may create a false impression of value ; thus, a statement that one sample contained 30 per cent of wool would suggest that it was superior to one containing 25 per cent, perhaps without justification. Further, it is obviously absurd to specify a number that cannot be substantiated by available methods of analysis and testing, though this is often overlooked by important public purchasing departments.

The Textile Institute has, therefore, decided to concentrate on the development of standard methods of analysis and testing and on the framing of verbal definitions. The Institute has appointed appropriate standing committees, that dealing with terminology being known as the Textile Terms and Definitions Committee. The aim of this committee is to secure that in the Institute’s *Journal* and other publications the terms used shall be clear and non-ambiguous, with the hope that they may be adopted by textile interests generally. The decision to appoint the committee was accelerated by a typical experience of the differences in local interpretation of textile terms. In one of the Institute’s professional examinations a question employed the word ‘crimp’. Some candidates in the wool trade interpreted this as the waviness of a lock of wool fibre, whereas others conceived it to mean the extent to which warp yarn is corrugated when combined with weft in weaving.

The Committee is not attempting to work through the alphabet from A to Z but considers terms for which there is some special urgency, and naturally one term often leads to another. The work is slow, for the task is by no means a simple one. The Committee has, in fact, spent many hours in debate over single words before putting forward a tentative

definition. Sometimes, a form of words has been devised to satisfy Lancashire and Yorkshire members—no mean achievement—when another member is heard to protest that in the Midlands the term in question has still another meaning! The members are ready to confess that their knowledge of textile matters has grown enormously by participating in such discussions.

Great difficulty in establishing precise terminology in textiles comes from the retail shops and the popular press. The overwhelming majority of fabrics are woven on looms, but 'woven' is often applied as a special term to the quite distinct warp-knitted fabrics of the Milanese type. 'Nylon' is another term that is grossly misused by the public. Strictly, the word refers to a chemical product and should generally be used in the adjectival sense—as nylon yarn, nylon fabrics, nylon lingerie, nylon stockings, etc. Most women now use the word, in the plural, for a pair of stockings, and already one sees in the shops so-called 'genuine glass nylons'! Some of these stockings have proved on examination to be made not of nylon but of viscose rayon and "glass" merely refers to their translucency. It is amusing to speculate on what would have happened if the first application of nylon yarn had been, say, in men's braces instead of women's hosiery. We might be talking about the working man coming down to breakfast in his 'nylons'.

Mention of nylon stockings leads on to another source of confusion, the hasty coining of terms by the technician, especially in America. Stockings of many types are placed on 'boards' and heated, generally in steam, in order to fix their shape and dimensions. With nylon stockings 'boarding' is an essential process. But what is 'pre-boarding'? Is it something that is done before 'boarding', or boarding that precedes another process such as dyeing? The term is very common in current technical literature but the significance of 'pre' is often difficult to ascertain.

These are some of the counter-influences that handicap the work of any committee concerned with precise terminology in textiles. The meaning of 'Rayon' provides an illustration of problems created by strong commercial interests. Until about thirty years ago, new fibres created in the chemical laboratory were described as Artificial Silk. The silk trade rightly objected to this as a mis-description and the word 'artificial' had, at that time, such a suggestion of inferiority that the makers of the new fibres also joined in the objection. The new word 'rayon' was suggested in the United States and soon became popular. It was (and is) a euphonious word that could be used as a noun or an adjective. In this country, we understood that the word would apply to all such chemical products and the patent specifications, even at that date, embraced most of the fibres that are now being manufactured. Soon, however, makers of new fibres refused to be covered by the generic term 'rayon', claiming 'uniqueness' for their products. The present position, in the United States at least, is that 'rayon' is restricted to fibres made by dissolving cellulose and regenerating it from solution. The chaos is well illustrated by a British patent specification dated 1951 which talks of 'Artificial Silk, for example

WITHERS : TEXTILE TERMS AND DEFINITIONS

Rayon or Nylon !' Everyone recognizes the advantage of including all the man-made fibres in one trade association, or tariff, or research department, or textbook, or journal, but commercial pressure appears to be too strong for the survival of the convenient word 'rayon' as the all-embracing adjective. And no trade organization appears to be willing to consider what to call a fibre made from a mixture of cellulosic and other constituents.

When considering a particular term, the Textile Institute's committee naturally looks first at a standard English dictionary, for there would seem to be no point in going further if the dictionary meaning is satisfactory. It is always interesting to consult the *Oxford English Dictionary*, especially for the early dated quotations given in the large edition, but unfortunately it is not often helpful. Here are a few examples, drawn at random. (1) The term *grège*, familiar to silk workers, is not linked with silk but given as an obsolete form of *grig* ! (2) The earliest date for the term *grey* as used for cloth in the loom state is 1844, but it will be found in the translation entitled 'The art of bleaching' by Pajot des Charmes, dated 1791. Under the date 1891, the *Oxford English Dictionary* quotes 'The grey is a term used in the cotton and worsted trade to describe pieces of yarn or slubbing as they come from the looms before going through any process of dyeing or finishing'. It is only necessary to say that slubbing precedes yarn in spinning and that yarn is fed to the loom, not the product that comes from the loom, to show that the *Oxford English Dictionary* has here perpetrated a 'howler'. (3) There are two words for a machine used in finishing to pull cloth straight while drying it. They are *stenter* and *tenter*, of substantially the same meaning and antiquity. Why the two words ? It is curious to note, by the way, that to *stent* is also defined in the *Oxford English Dictionary* as 'to extend on an instrument of torture' (which some regard as an apt description of the machine) and also 'to assess or tax', with which happy association of ideas we can all agree ! (4) There are two spellings for the name of the cloth that is very popular for waterproofs, *Gabardine* and *Gaberdine*. The *Oxford English Dictionary* says the former is obsolete but it is still quite common and can be seen to-day in shop windows in Manchester. If the *Oxford English Dictionary* had said the *e* spelling is preferred, that would be acceptable, but to call the *a* obsolete reveals little acquaintance with textile literature.

One or two examples of the arguments raised in the committee's debates may be interesting. First, what is a *Textile fabric* ? We concede that it is thin in relation to its surface, that is, it is *laminar*, and that it is a fibre product. But so is paper. A fabric is, furthermore, permeable to air (unless it has been coated with something like rubber). But so is perforated zinc, laminar and permeable. What then distinguishes a textile fabric from paper or perforated zinc ? Obviously, the fact that it is made from threads. So we arrive at the definition. 'A laminar structure composed of interlacing threads'. But, now, where does *Felt* come in ? Many felts are made without any interlacing threads but some have this basic structure. Is a *felt* a *fabric*, or isn't it ?

Next, what is *Bleaching*? Is it whitening? Not exactly: we should scarcely claim to bleach our hen house when we whitewash it! Bleaching entails removal or destruction of some inherent colouring matter. But mere washing with soap and water will remove 'colour' in the form of dirt, fruit stains and so forth. It is not so simple a matter as it might appear to define bleaching in a way that makes sense of the well-known advertisement 'Whiter whites and without bleaching'.

Or take the familiar term *Union fabric*. This generally means a fabric in which the warp and weft yarns differ in their constituent fibres. One may be cotton and the other wool, and indeed many people would expect a Union fabric to be a wool material. However, in the linen trades there are union fabrics that do not contain any wool: they usually have cotton warp and linen weft. Further, what are we to do with fabrics in which the mixture of fibres occurs within the constituent yarns? Such fabrics are mixtures, but are they unions? This debate is not yet over, although the Committee has carried it on for several hours.

One aspect of the problem of textile terms that interests a few people is their origin and antiquity. There are societies for the study of folk-lore, the origin of surnames and place-names, but, unfortunately, not for the study of the origins of our textile terms, including their pronunciation. Why, for example, is an essentially similar product called 'slyver' in Lancashire and 'slivver' in Yorkshire, and spelt 'sliver' by both cotton and wool men. And is it true that the fibrous material made in the woollen trade by pulling down new or old hard-woven or milled cloth or felt in rag form is called *Mungo* because an originator said that the process 'mun go'?

For historical inquiries of this kind textile text-books afford very little help. It must be confessed, I presume, that the pioneers in British textiles were often unlettered men incapable of committing their knowledge to paper for the inspiration of posterity. Here the quotations given in the *Oxford English Dictionary* are valuable, at least for giving a clue to the likely sources.

Let us consider a few examples of terms for quite familiar things. (1) *Bobbin*, 'an article round which thread or yarn is wound in order to be wound off again with facility, and as required, in weaving, sewing, etc.', is traced back to 1530. (2) *Cop*, on the other hand, though very closely associated with bobbin in modern spinning terminology, has not been found earlier than 1795. It is most probably related to the German 'Kopf' and the term is also applied to the round piece of wood in the top of a beehive! (3) *Duck*, for a strong fabric resembling canvas but lighter in weight, is surely derived from the German *Tuch* or Dutch *Doeck*. It appears in 1660 in an Act of the reign of Charles II. (4) *Gaberdine* appears to have been a loose upper garment of coarse material, like a smock frock and was particularly associated with beggars and pilgrims. A Lancashire will of 1520 has 'I bequeath unto litill Thom's Beke my gawbardyne to make him a gowne'. The *e* spelling occurs, of course, in Shakespeare, as for example, in Shylock's complaint 'you spit upon my Jewish gaberdine'.

WITHERS : TEXTILE TERMS AND DEFINITIONS

(5) *Hank* for a skein or coil of yarn apparently derives from Norse languages and has been traced back to 1483. It is now a term used for a definite length of coiled yarn and this can be traced to 1776-7 in an Act of the reign of George III that laid down that 'every several hank of such worsted yarn shall . . . contain seven raps or leas'. (6) *Lea* is probably derived from the French *lier* or Latin *ligare*, to bind or tie. It has been found in 1399 and its quantitative meaning occurs in 1696 in a declaration 'Every lea of yarn at Kidderminster shall contain 200 threds reel'd on a reel four yards about'. (7) *Kier* is also closely connected with Scandinavian words for large vessels or tubs; thus Norwegian *kjer* and Danish *kar*. It occurs in Lancashire and Cheshire wills, in 1573, for a brewing vat but the sense in which the word is familiar in the bleaching industry has not been traced beyond 1839. (8) *Mule*. We are so used to the present restriction of this term to a hybrid between the horse and the ass, that we may wonder why the machine invented by Samuel Crompton in 1779 was called a mule. It was a hybrid, combining features of Arkwright's and Hargrave's machines, and in those days hybrid plants, fishes, birds and animals were commonly called mules. (9) *Skein*. This is another term for a loose coil of yarn, of obscure origin but found in records dated 1440.

Another source that is worth studying for light on textile terms is the great diaries. An admirable study of Pepys' diary from this point of view was published in 1949 in the *Journal of the Textile Institute* by Mr. Walter English of Leek. As we might expect, there are many references to the rich fabrics with which Pepys and his good lady were clothed and his frequent references to their cost awaken answering chords in our minds to-day. Sometimes his descriptions are very clear: thus, 'My wife and I to Cornhill, and after many tryalls bought my wife a chintz, that is, a painted Indian calico, for to line her new study, which is very pretty'. What are not so familiar, however, are Pepys' references to other textile matters, particularly in his capacity as Secretary to the Admiralty. He has a good deal to say about cordage, ropes, sailcloth, flags and other naval stores. To his great credit we find him exposing a scheme for surfacing old rotten rope with new fibre and tar, thereby defending the Admiralty from a serious fraud but also, in all probability, saving many lives. He refers to comparisons of the strength of various ropes. How were strength tests made in those days before heavy machinery? It appears that loads were suspended by the specimens under test and the component cords were severed one by one with a sharp knife. The rope that survived until fewest strands remained before breaking was obviously the strongest.

Critical surveys like that by Mr. English, supported by references to other contemporary records, should be extended in all directions before it is too late. The quotations from the *Oxford English Dictionary* suggest that there is a curious variety of likely material—Acts of Parliament, wills, local histories, diaries and what not. To this might be added Patent Specifications and old records from mills and factories. The latter source is almost an unknown quantity but it would be worth while to take an inventory of the archives still available. There are specialists at the

universities and elsewhere, who, with the guidance of textile technologists, could study them to very good purpose.

Material of the kind recently came into the writer's hands. Much of it concerned work in which John Mercer and John Lightfoot, two great pioneers in the arts of textile dyeing and finishing, were frequent correspondents and collaborators. One striking impression left on the mind of the reader is the extremely friendly way in which 'secrets' were shared with German colleagues in those days, a century ago. As a matter of general interest, too, one noted the following in a letter from Mercer to Lightfoot, dated 1849: 'Can you make it convenient to get into the railway at 9.50 at Accrington, arriving in Manchester at a quarter to eleven, and if your time is ill to be spared you can return by the 1.15 and arrive back in Accrington at a little after 2.' Such a journey by train could not be bettered for speed even now, a century later.

I hope that I have been able to indicate to you a field in which the information officer can find much of interest and many outlets for his special knowledge—the framing of precise definitions for the things and processes of his industry, and the study of their history.

MEMBERS' FORUM

THE PUNCHED-CARD INDEXING EXPERIMENT AT THE LIBRARY OF THE ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL

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THE library at the newly-formed Atomic Energy Research Establishment was set up in 1946,¹ and from the start it became obvious that a subject index, capable of unlimited expansion, must be compiled for the rapidly accumulating report literature. It was thought that here was an excellent opportunity to try out the rather novel scheme of indexing by means of punched cards. The present paper briefly describes this experiment in indexing and gives the reasons for the discontinuance of the scheme in favour of an orthodox card index.

The system of indexing in the A.E.R.E. Library is the Universal Decimal Classification. As is well known, this system is the assigning of a decimal number to each 'aspect' of the subject matter, and where the aspects are related the decimal numbers are connected by a colon. For an orthodox card index (or 'visual index') one card would be necessary for each decimal number within the colonned group; so that if, as often happens, there are three related aspects to a subject, then three cards would be made out, each in turn with one of the three related numbers to the fore, the rest in cyclic order. Some reports can be described only by relating as many as four U.D.C. numbers, so that four cards would be necessary for a visual index.

The principal advantage of the punched-card method of indexing was regarded as the cheapness of setting up as compared with a visual index, for one card only need be punched with the U.D.C. numbers assigned to a report, instead of the one, two, three or four cards necessary for a visual index. Further, no filing effort would be called for, as the punched cards could be kept in random order. A set of cards bearing abstracts of the documents indexed was to be kept in serial order according to the report number, and after a machine sort of the punched cards, the enquirer could be referred to the appropriate abstracts in the abstract file for further information—the punched cards bore only the report number, title and U.D.C. numbers.

The punched card measured $7\frac{3}{8}$ in. by $3\frac{1}{4}$ in. Lengthwise it was divided into five groups or fields, A, B, C, D, E, each containing sixteen columns in which any of the twelve digits 0 to 9 plus the additional

¹GOSSET, M. The library of the Atomic Energy Research Establishment. *Atlib Proceedings*, 1949, vol. 1, no. 3, pp. 218-224.

'digits' X and Y could be punched. In the field B the first U.D.C. number was punched; in the field C the next related U.D.C. number; and so on to fields D and E. Field A was reserved for the special subdivisions of language (the U.D.C. = sign being punched as YY on the card), and of form and place (the U.D.C. () sign being punched as XX). The time subdivision (" ") was punched as Y, and the special analytical subdivision (-) was punched as X, in whichever of the fields B to E they applied. The machine was capable of searching eight digits simultaneously.

The punched-card index was begun in November, 1947, and operated until November, 1949. At the latter date there were some 6,500 cards in the file. During the use of this index certain disadvantages became apparent, which may be enumerated as follows:

(1) For a complete search on one particular aspect, it was necessary to feed the file of cards four times through the machine, with the selecting brushes set for the required number in each of the four fields B to E in turn. It was found that the time taken for a machine search for one aspect over the four fields was between three-quarters and one hour. Some saving of time was achieved by keeping the cards in blocks according to whether they were punched in one, two, three or four fields. In this arrangement, those cards punched in one field only would not be fed into the machine when the other fields were being searched; those punched in two fields would not be searched when the third and fourth fields were being searched; and so on. For a full search, several aspects might have to be searched for in turn, so that several hours' machine time would be involved.

(2) After a machine search, giving report numbers and titles, it was usually necessary to make a narrower selection by reference to the abstract cards filed separately. There was insufficient space on the punched cards for adequate abstracts, and even if this had not been so, the typing effort involved by the need for regular replacement of worn cards (see (4) below) would have been prohibitive.

(3) Owing to the fact that to search on too 'fine' a U.D.C. number (i.e. one that took the aspect required to a very detailed degree) might mean, if the result was unsuccessful, searching all over again on a 'broader' number, there was a tendency to set the machine for broad U.D.C. numbers, and to search the selected cards by hand, thus adding to the human labour and defeating the purpose of machine sorting.

(4) Considerable wear and tear on the cards became evident after a year's working, and much repunching had to be done. As the cards became worn, repeated adjustment to the machine (by an outside mechanic) was necessary, which on several occasions caused the holding up of important searches. The operator had frequently to repunch odd cards torn up by the machine in the course of a search, because of the worn nature of the cards, and each 'tear-up' meant a delay of five minutes or so in the search, at least. It became evident that if the punched-card index was to be continued, the prospect of bulk renewal of cards at possibly yearly intervals would have to be faced.

ASHTHORPE : PUNCHED-CARDS AT A.E.R.E.

(5) The experience of the two years was that the number of searches needed was much less than originally estimated, so that the machine was idle for, at times, days on end. Its retention, therefore, from the point of view of operating time was uneconomic.

(6) On the other hand, the number of searches that could be tackled in one day was limited for the reasons given in (1) above to about three, and no two searches could, of course, be carried on at once, as is possible with a visual index.

(7) Consistency in classifying was made difficult in that ready access to the index was impossible; for it is often necessary when classifying to look back to see where a similar document was indexed before, particularly in the subject of atomic energy, where the U.D.C. is still being developed.

With a view to easing some of the difficulties and disadvantages enumerated above, a new layout of the punched-card was formulated. This, briefly, made use of the 'geography' of the card, so that the U.D.C. number assigned to a report would always be found in a particular column proper to the aspect it described. This would enable the search to be confined to a particular column and so avoid the necessity for a card to be fed several times through the machine. There was the further advantage that positioning a group of numbers to one column enabled the earlier digits to be omitted, so that better use could be made of the eight 'characteristics' (or digits) on which the machine could search simultaneously. Further coding refinements were also suggested which would allow reports to be selected if necessary according to their place or year of origin. However, although the suggested alteration in punched-card layout would reduce the time taken in searching by about a quarter or more and increase the selectivity of machine searching, the decision was made not to adopt it, partly because of the cost of conversion, partly because there were still insufficient searches to keep the machine in full-time operation, and partly because experience was showing that a visual index had considerable advantages over a punched-card index in other directions.

The conversion of the punched-card index to a visual index was begun in September, 1948, and was completed in November, 1949. In the original calculations of the cost of setting up a punched-card index, relative to that of setting up a visual index, it had been taken that, as several cards would be needed for each report in the visual index, the particulars of each report—U.D.C. numbers, title, author, abstract, etc.—would have to be typed on a stencil and copies dry-mounted on cards. The process of dry-mounting is slow and the finished card not altogether satisfactory for constant handling. However, a great step towards reducing the cost of establishing a visual index was the discovery that cards could be Roneoed just as satisfactorily as filmsies, and the dry-mounting stage could be eliminated. With the Roneoed card system, it is no trouble to reproduce the abstract and full particulars of the subject matter at all places in the visual index, whereas with the punched-card system there was always the

necessity to refer from the punched cards to the abstract card drawer, a tedious procedure.

The visual index has other advantages over the punched-card index :

- (1) Several searches may be conducted simultaneously.
- (2) 'Snap' questions, which can be answered merely by looking in one place, can be answered much more quickly than with the machine, where it would be necessary to feed through the whole file of cards.
- (3) From the searcher's point of view, a visual index enables him, while making his search, to start off in fresh veins of enquiry suggested by examining preconceived ones ; this is not possible with a mechanical searching system which will only search blindly.
- (4) Once set up, the visual index is permanent and replacement of cards through wear and tear is rarely if ever necessary.

To sum up, it may be said that whilst it may be somewhat more expensive to set up a visual index than to set up a punched-card index, in that more cards are needed and that they must be filed by hand in a given order, nevertheless the advantages from the searcher's and casual enquirer's point of view outweigh this relative extra expense. The original estimate of machine costs was based on the assumption of full-time working and only on this basis could it be economic. If a modified card layout were used, with abstracts reproduced on the cards and with perhaps a 'collator' machine (which enables 32, instead of 8, characteristics or digits to be searched at once), the punched-card system would have been made more effective, but, of course, it would have been still more expensive. From the point of view of man-power, one clerical assistant is needed for numbering the visual index cards and one scientific assistant to file them ; whereas one machine operator only is needed to punch cards. But the rent of the machine must be taken as the equivalent of a scientific assistant's salary ; and the scientific assistant spends less than a third of her time filing. In any event, no machine method would either enable classifiers to refer quickly to earlier classifications, or suggest, during the actual search, new lines of enquiry.

This survey describes a particular experiment in the use of punched cards for indexing, and should not be made the basis for general conclusions about the efficiency of the method in other circumstances or in other applications.

WHY 'DOCUMENTATION' ?

BY S. R. RANGANATHAN, M.A., F.L.A.

Professor of Library Science, University of Delhi

(In a letter to the International Federation for Documentation of 19th October, 1951, Sir Hilary Jenkinson, Deputy Keeper, Public Record Office, and Chairman of Directorate, National Register of Archives, made certain friendly criticisms of the scope of its work, to which Dr. Ranganathan makes the following reply :)

THE CHIEF contentions of Sir Hilary Jenkinson in his 'friendly criticism' may be summed up as follows :

1. The International Federation for Documentation (FID) attempts to cover only half the field it ought to cover in its work ; and
2. The FID appeals to only half the students to whom it ought to appeal.

These contentions are largely traceable to the meaning attached to the term 'Documentation'. Instead of starting with this very term and recognizing the meaning given to it as a technical term during the last two decades, Sir Hilary starts with the word 'Document'. He defines this term as follows : "For the ordinary man 'Document' means primarily manuscripts." From this definition he passes on to the statement that 'Document' means what "Students in all fields are now learning to recognize under the title of Archives ; that is to say manuscript matter (including, it is true, to an increasing extent printed and other reproductions but still preponderantly original productions of the pen or the writing machine) accumulated by a natural process in the course of the conduct of affairs of any and every kind".

The result of having 'Document' in mind, while looking at 'Documentation' as it is understood to-day, is to get startled 'at the neglect' of documents by documentalists ! Of course in this startled mood a documentalist is taken to mean a consumer or a conservator of archives.

It is through Sir Hilary's present letter that I learn that he had been repeating this idea since 1936. This information has given me an explanation of a similar opinion stressed by another archivist in another land in 1949 ; and it should give satisfaction to Sir Hilary that his influence in this matter has reached a long way in the archival world.

But his opinion is based on an illusion arising out of a misunderstanding of the term 'Documentation'.

From the turn of the present century, bibliographers began to pay attention to micro-thought (i.e., articles in current periodicals) and not merely to macro-thought (i.e., whole books). This was necessitated by large-scale promotion of research work 'in-series' and the need for communicating nascent thought to all workers in the field as and when each little quantum of it got created. The technique of organizing (classifying and cataloguing) Micro-Bibliography (bibliography of micro-thought) presented difficulties not met with in preparing biblio-

graphies of macro-thought. Forging of Depth-Classification of an analytico-synthetic kind, approximating to a self-perpetuating kind and vouchsafing considerable autonomy to competent classifiers, is being attempted to meet these difficulties.

Moreover, each micro-thought gets embodied, in the first instance, not independently but collectively in the company of many other micro-thoughts. These are strung together in an arbitrary disjointed manner, i.e. in a state unfit for continuous study. For reasons of economy, articles on diverse subjects have thus to be brought out under one and the same cover. These constitute, of course, periodicals. This creates another difficulty. It is seldom that any person is interested in all the articles appearing in a periodical he takes. Often much of the stuff contained in it is unwanted, dead stuff relatively to him. This by itself proves a burden.

Again, the number of periodicals has increased by leaps and bounds. Indeed, the number increased ten-fold while passing from the nineteenth to the twentieth century. It is financially impracticable for individual workers, and even for individual libraries, to take all the periodicals in which micro materials in any specified subject might appear. This proves to be a second burden.

One method of meeting these two difficulties would be to publish articles as separates only, but that has many other drawbacks. It has not therefore been attempted. Composite periodicals thus persist. The more rational and revolutionary scheme outlined by Dr. Bernal at the Royal Society's Conference on Scientific Information has not yet been fully explored or experimented upon. Therefore the two difficulties which beset communication through periodicals continue to exist.

Nevertheless, relief has come during the last few years from another direction. It is that of cheap methods of photographic reproduction of printed matter. Remarkable progress has been made in these methods. Unthought-of possibilities have been brought to notice—down to micro-strips and micro-cards. Access to any desired micro-thought is thus being brought within the economic possibility of any worker.

Micro-bibliography and economical service of articles by photographic methods started to attract active attention about a generation ago. At that time a generic term was needed to cover these two activities. Moreover, bibliography and macro-thought had been so forged together in people's thought that it was felt that the term 'Bibliography' should be replaced by some other term so that micro-bibliography might get emphasized. It was in this predicament that the French linguistic genius produced the term 'Documentation' from which the other terms such as 'Documentation List', 'Documentation Service', and 'Documentalist' have been derived.

This genesis of the term 'Documentation' makes it clear that the materials coming within its purview are printed and published ones arising in the course of the creation of new thought by persons working in the forefront of knowledge, and not unpublished unique manuscripts of the archival kind 'accumulated by a natural process in the course of the conduct of affairs of any and every kind'.

RANGANATHAN : WHY DOCUMENTATION ?

In his *Documentation* (1948) S. C. Bradford has stated categorically as follows :

The art of documentation is the art of collecting, classifying and making readily accessible the records of all kinds of intellectual activity. It is the process by which the documentalist is enabled to put before the creative specialist the existing literature, bearing on the subject of his investigation, in order that he may be made fully aware of previous achievements in his subject, and thus be saved from the dissipation of his genius upon work already done. . . . The principal medium for recording progress is the periodical press, which speaks in so irregular and incoherent a manner, that it is impossible, without documentation, to obtain a clear and concise view of any particular branch of knowledge, large or small.

In the article *Classification and international documentation* published in FID's *Review of Documentation* (vol. 14, no. 4), I stated as follows :

Documentation is a mode of featuring in a list of entries the work done in the entire field of knowledge. One quality of documentation should be that it brings all relevant materials to the notice of any worker, however narrow the extent of the section of knowledge on which he is engaged and whatever be the depth from which it is taken. It must give equal facility also to those working on slices of knowledge formed from time to time and bring to their notice exactly, exhaustively, and expeditiously all the information published in books, serials or periodicals, and related to their work directly or indirectly, and immediately or remotely.

In *Public library provision and documentation problems* (Indian Library Association, English series 2), 1951, I have shown the convenience of distinguishing between Documentation Work (preparing documentation list), Documentation Service (making the materials documented available either in original or in mechanically reproduced copies) and of adding Translation Service to these. I now add that the gigantic size to which documentation lists have begun to grow has called for the use of machinery for search in such lists. The invention and the continuous improvement of this machinery and its application in day-to-day work may together be denoted by the term 'Documentation Search'. I suggest that it will be convenient if the term 'Documentation' is reserved to represent the complex of these four processes. The term 'Documentation Centre' may be reserved to denote a place where documentation is practised. It may be stated here that the emphasis on micro-thought, by the term documentation, emphasizes also that the beneficiaries of documentation are not the general public, but specialists who dive to great depths in closely defined areas in the universe of knowledge, as an intellectual pursuit.

I strongly recommend that archives work and documentation should be kept quite apart from each other. There is the International Council of Archivists to care for the former. The International Federation for Documentation should be left to pursue the latter. Both are necessary. Division of function will be conducive to mutual advantage. One should

not seek to encroach into the field of the other nor should the two attempt to coalesce into one.

In these days of indiscriminate aerial warfare, archives which are mostly unique manuscripts of considerable value to history may well be duplicated by the micro and other photographic methods developed by documentalists and kept safe in places likely to be unreachable by atomic bombs. Though these photo-copies will be totally bereft of the aroma of the original writing and the paper or any other material on which writing had been done, photography ensures for us the accuracy of reproduction and marks of authenticity. Photographic reproduction then is one of the points where archive administration and documentation meet.

For some time I have been pursuing in the pages of the *Indian archives* what I have termed 'the Laws of Archival Science' and contrasting them with my Laws of Library Science. While the laws of the two sciences are often the opposite of one another, to my mind they seem to agree to a large extent in regard to photography and other kinds of mechanical reproduction, and are also prepared to recognize considerable common ground between their systems of classification and methods of cataloguing. The fact that it is the thought-unit that is primarily classified and individualized in the case of printed materials, and the thought plus the very physical material embodying it—unique in every way—that is individualized in the case of archives, accounts for the difference in their systems of classification and methods of cataloguing.

I trust that Sir Hilary will tolerate an old student of his thus controverting his ideas. In the intellectual world—in the world of scholarship—which can for the moment free itself from all sentiments and emotional barriers, it is frank criticism of one another that helps the discovery of truth and carries thought forward. The more intimate the critics are to one another at the personal level, the more productive such a frank and friendly criticism becomes.

The FID covers the entire field of knowledge. It appeals to all the students to whom it ought to appeal. If, to-day, there is a greater frequency of papers relating to physical and natural sciences than to humanities and social sciences, this is but a reflection of the rate at which new thought—new micro-thought—is being created in the respective fields. The accelerated march of industries to feed, clothe and shelter the ever-growing and the over-teeming millions inhabiting the earth is perhaps responsible for greater creativity in the one field than in the other. My conjecture is that the frequency of papers coming up before the FID relating to physical and natural sciences on the one hand and humanities and social sciences on the other is in proportion to the periodicals in the respective fields and the number of articles contained in them. A comparison of the number of abstracting periodicals in the two fields will be another means of recognizing that what is happening in the FID is just commensurable with what is necessary and practicable. Thus the present coverage is as true to the demands of the happenings in the world of knowledge. That which needs doing at the moment has been done and is being done, as Viswamitra would put it.

THE PREPARATION OF SYNOPSSES

THE ability of an author to summarize his paper sufficiently objectively to be usable as the basis for an abstract is a topic that has been hotly debated at more than one Aslib conference. Here one may perhaps remind readers of Dr. Gordon S. Fulcher's paper, "Authors' abstracts as an aid to documentation,"¹ in which he pointed out that useful authors' abstracts, by which he means the summaries printed at the beginning of articles, would be more satisfactorily compiled if authors would consider them as separate independent entities, written as they would write an abstract for an abstract journal.

This point of view was echoed in paragraph 8.9 of the recommendations adopted by the Scientific Information Conference organized by the Royal Society in 1948. The paragraph reads as follows :

8.9 *Authors' summaries*—The present general unsuitability of authors' summaries for use as abstracts is recognized ; nevertheless, if these could be used it would increase the speed of publication and reduce the cost of journals publishing abstracts. It is, therefore, recommended that the Royal Society invite editors of scientific journals to co-operate with abstracting organizations by seeing that each paper is accompanied by a factual summary suitable for use as an abstract in appropriate journals of abstracts ; and that, at the same time, abstracting organizations be called on to formulate agreed principles to guide editors of scientific journals.

Subsequently, to implement the last part of the recommendation, the Royal Society formulated a series of principles in a short *Guide for the Preparation of Synopses*, 'synopsis' being the term adopted by the Royal Society and by the Unesco International Conference on Science Abstracting 'to describe an author's summary of a scientific paper which is published simultaneously with the paper itself after editorial scrutiny by the editor of the journal in which it is published'. The International Conference on Science Abstracting held under the auspices of Unesco in 1949 perceived in the 'synopsis' a means not only for conveniencing the readers of the journals in which they appear, but also for reducing the cost and particularly for expediting the preparation of abstracts for publication in the abstracting journals. Both the Conference and its Continuation Committee urged Unesco to promote the adoption of the use of 'synopses' by scientific journals, and to secure from the Royal Society permission to reproduce the *Guide*, with minor modifications, in English, French, German and Spanish, and to make it available through the respective National Commissions for Unesco, to editors of journals who would like to have them for distribution to prospective authors, together with any standing instructions appropriate to their particular journal.

¹ *Report of the Proceedings of the Sixteenth (Aslib) Conference, 1939, pp. 41-5.*

The leaflet is now available and covers not only the definition of the 'synopsis' as quoted above, but also the purposes that can be served by a synopsis, together with recommendations as to the style of writing, the content, form of references, length, and the language and format of publication.

E. M. R. DITMAS.

LONDON AND BRANCH MEETINGS, 1952

CONTENTS

	PAGE
INTRODUCTION	III
JOINT F.B.I. AND ASLIB MEETING	
<i>London, 18th March, 1952</i>	
INFORMATION AND INDUSTRY.	
SIR ALFRED EGERTON, F.R.S. (Secretary, The Royal Society, 1938-1948).	113
NORTHERN BRANCH	
<i>Sheffield Conference, 27th March, 1952</i>	
SYMPOSIUM ON PUBLIC, GOVERNMENT AND INDUSTRIAL LIBRARIES.	
1. THE WORKING OF AN INDUSTRIAL LIBRARY.	
GEO. H. DAVISON (The United Steel Companies, Ltd., Research and Development Department)	121
2. THE GOVERNMENT LIBRARY—WITH SPECIAL REFERENCE TO THE LIBRARY OF THE SAFETY IN MINES RESEARCH ESTABLISHMENT.	
E. B. SMITH, A.L.A. (Librarian, S.M.R.E.)	132
3. THE WORKING OF A PUBLIC SCIENTIFIC AND TECHNICAL LIBRARY.	
J. ROLAND SMITH, F.L.A. (Librarian, Commercial and Science & Technology Libraries, Sheffield)	139
TECHNICAL INFORMATION SERVICES.	
P. W. NASH, B.A. (Information Officer, Soudes Place Research Institute, Dorking)	146
LONDON WINTER MEETING	
<i>2nd April, 1952</i>	
MICRO-OPAQUES.	
H. R. VERRY, F.L.B.P., A.R.P.S. (Organization Officer, H.M. Treasury, O. & M. Division)	153
MEMBERS' FORUM	
FRENCH OFFICIAL DOCUMENTS.	
BARBARA KYLE (Librarian, Royal Institute of International Affairs)	163
STITCHING OF BULLETINS.	
D. J. FOSKETT, B.A., F.L.A. (Information Officer, The Metal Box Company, Ltd.)	165
THE WORK OF ASLIB for the year ending 31st December, 1951	167
THE BRITISH UNION CATALOGUE OF PERIODICALS.	
Annual report and accounts for the year ending 31st March, 1952	179

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ASLIB PROCEEDINGS

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INTRODUCTION

ON 18th March, 1952, a conference on 'Information and Industry' was held in London under the joint auspices of the Federation of British Industries and Aslib, at which some 130 people attended. The Chair was taken by Mr. A. H. Wilson, Chairman of the F.B.I. Industrial Research Committee. We are glad to be able to publish the paper given by Sir Alfred Egerton on this occasion when he surveyed the historical growth of scientific information and the awareness of the need for its organization which culminated in the Royal Society's Scientific Information Conference in 1948. Sir Alfred's summary of the steps taken to implement the recommendations made at this Conference for the better organization of scientific information was put forward in the hope that it might suggest solutions to parallel problems in the organization of industrial information.

Other speakers at the morning session were Dr. J. H. Chesters (The United Steel Companies, Ltd.) and Dr. J. Farquharson (Beecham Research Laboratories, Ltd.), who spoke of the practical value of information services in industry, and Mr. Leslie Wilson (Director of Aslib), who gave examples of some of the services which Aslib provides for industrial members. In the afternoon, the delegates visited the information services of a number of companies and a research association in the London area.

At the end of March, the Northern Branch of Aslib held a very successful conference in Sheffield, under the Chairmanship of Mr. W. H. Higginbotham, F.S.A.A., President of the Sheffield Chamber of Commerce and Chairman of Messrs. Edgar Allen & Co., Ltd. The conference was opened by the Lord Mayor of Sheffield, Alderman T. W. Bridgland, and the meetings were held, by kind permission of Mr. J. P. Lamb, Chief Librarian, Sheffield City Libraries, in the Library Theatre. At the morning session three papers were given in the form of a symposium on different types of library, by Mr. Geo. H. Davison (The United Steel Companies, Ltd.), Mr. E. B. Smith (Safety in Mines Research Establishment), and Mr. J. Roland Smith (Sheffield City Libraries). After lunch Mr. P. W. Nash (Messrs. MacTaggart & Evans, Ltd.) spoke on technical information services with special reference to their organization at the Soudes Place Research Institute. All four papers are printed in full in this issue.

The last of the 1951/52 Winter Meetings organized by Aslib in London took place on 2nd April at Chaucer House, when Mr. H. R. Verry (O. & M. Division of H.M. Treasury) spoke on micro-opaques, i.e.

microcopies of documents which are reproduced on a paper or card base in distinction to the more familiar microfilm on a translucent base. Mr. Verry has recently completed an investigation of the current methods of microphotography and of the equipment available in Europe and America which he undertook at the invitation of Unesco, and his reasons for the recommendation of micro-opaques should be studied with care. Lack of suitable readers in this country have made British users less familiar with micro-opaques than with microfilm, but both Mr. Verry and speakers in the ensuing discussion emphasized the fact that the commercial development of apparatus would be speeded up if users could formulate their needs clearly. At the present time conflicting arguments in favour of the many various types and sizes of microcopies make manufacturers unwilling to produce in quantity—and, therefore, more cheaply—apparatus which they fear might soon be superseded.

In MEMBERS' FORUM this time we print two short but interesting contributions. Miss Barbara Kyle describes the successful outcome of an international conference on problems connected with official documents, successful at least as far as French official documents are concerned. It is hoped that other governments may follow their example. In the second paper Mr. D. J. Foskett gives details of a simple but effective gadget for stitching bulletins and other documents.

Lastly, we include the latest annual report and accounts for the *British Union Catalogue of Periodicals*, and the year's work of Aslib for 1951. The latter is part of the report circulated to all members before presentation at the Annual General Meeting of Aslib held on 23rd April, but is included here in continuation of the series which formerly appeared in the annual *Conference Reports* and which provides an outline of the history of the organization since its foundation in 1924.

E. M. R. DITMAS,
Editor.

INFORMATION AND INDUSTRY: A GENERAL SURVEY

BY SIR ALFRED EGERTON, F.R.S.

Secretary, The Royal Society (1938-48)

London, 18th March, 1952

IN an address given three years before the war on 'Applied Science', I seem to have remarked that, 'The last forty years has seen an immense change: an immense change, too, of outlook. To me it has seemed as if the change came gradually and then the rate of change got more and more rapid and during the last year or two the change has been permanently effected and we have toppled over into a new era.' The topple over was indeed a deeper topple than even some of us then expected. I think all would agree, however, that there is a tremendous change in outlook. We are far more conscious, and getting more and more conscious, of the material factors, the economic factors, which influence Man's activities, far more conscious of the influence of scientific research and technological developments than we were fifteen or twenty years ago. It is this very consciousness which creates its own difficulties. It is known that if certain changes are made, they will cause other changes; and that if the information is available those changes can be predicted. Therefore, we are loathe to make the change till the information is gathered. If we do not take trouble to get the information, we should blame ourselves or perhaps be blamed. We are all far more closely knit up, far more conscious of our actions. In drawing upon the ocean of knowledge, however, its vastness tends to overwhelm us.

We are not really in a *new* era; we are in an era which started in the seventeenth century; and it is now in full blast. Whatever the historians may say, the world without the discoveries and inventions of the past three hundred years would be quite a different place. Those who started the scientific era realized very early that it was necessary to provide means for record of their experimental observations and discoveries. The *Philosophical Transactions* of the Royal Society was almost the first of such publications; in fact, the only one which has had a continuous existence since 1665, the date of the first issue; volume 243 was issued a month ago. Several National Academies were in full swing in the seventeenth century and the Royal Society's *Transactions* were soon in goodly company. When the nineteenth century started a number of special journals edited by natural philosophers had also come into existence—*Nicholson's Journal*, *Berzelius' Annalen*, and several such publications in which new knowledge found its abode.

It was not till well into the nineteenth century that special societies for the separate sciences were founded, except for a few rather older members of the family. In the middle of the century there were only a few recognized channels in which scientific work in this country was published, but there was a fund of knowledge which was unrecorded

and much which was stored in the minds and the skill of those engaged in various industries, scattered and unshared. Some of this technological knowledge was recorded in the patent literature which was growing ; some of it got into the few books and encyclopædias of the time, but much of it was picked up by chance by the more observant 'curious' persons of the day.

During the *latter* half of the nineteenth century, the sources of information began to multiply rapidly. The specialist societies sponsored journals in the several branches of the sciences in many different countries, and maintained a high standard of publication. Older journals (such as the *Philosophical Magazine*) became fully established. These old-established journals can be likened to great rivers of knowledge. Technological periodicals multiplied, drawing upon both academic sources and professional sources for their information, which they disseminated to the industries concerned. In the twentieth century these information services expanded still further. For instance, the *Annalen der Physik* ceased to be sufficient to cope with the progress of physics in Germany and the *Zeitschrift für Physik* was founded and recorded many exciting new developments. The great compilations, *Beilstein*, *Gmelin*, Landolt Bornstein's *Tabellen* and the like, grew into mighty reservoirs to satisfy the ever-growing thirst of the research worker. Germany played a large part in all this, but France and England, too, had their enthusiasts for the documentary work ; Charles Marie with his *Tablettes Annuelles*, Mellor's *Inorganic Chemistry*, to cite examples. Abstract journals were now in being, providing an essential dual service ; that of providing awareness of published work and that of maintaining a record so that reference to the original source could be made.

These covered the main sciences and a number of specialist abstracts covered special branches. *Reviews of Progress* in the sciences also became available. There were the Royal Society's *Catalogue of scientific papers* and the *World list of scientific periodicals*. Taking it all round, the world of science had evolved an efficient system for the record of the advance of scientific knowledge. Industry had helped to ensure that science was well served by this whole information service.

For the storage of knowledge, libraries, of course, were the reservoirs essential to the utilization of all the knowledge contained in all the books and periodicals. The documentation of all this mass of information has been an ever-growing problem about which there has been controversy, because on the one hand there are those who wish for completeness of record, and on the other those who prefer order without the complication and delay which a search for perfection entails. The total mass of literature is tremendous, but the published material of real worth appears for the most part in a fairly small proportion of the total journals and the loss of something valuable now and then is not very serious in comparison with the total value.

The information available to the technologist to-day is tremendously complete compared with that which was available a hundred years ago. What was the state of technical literature then ? There were a few papers

EGERTON : INFORMATION AND INDUSTRY

in the *Proceedings of the Institution of Civil Engineers* (commencing 1837) ; the subjects were very diverse. The Institution of Mechanical Engineers had only just started (1849) to publish papers. The Royal Society of Arts had been publishing their journal for many years, but the papers were scrappy. The *Philosophical Magazine*, of which Sir David Brewster was then one of the Editors, had some really good engineering science in it. There were also, of course, the publications of the Royal Societies of London and of Edinburgh. There was very little else. The North-East Institute of Mining Engineers' *Transactions* did not start publication till 1852, the Iron and Steel Institution, centred then in Newcastle-upon-Tyne, made its début in 1861, but the *Journal of the Iron and Steel Institution* dates from 1874. The *Engineer* started in 1856, *Engineering* ten years later. There was no *Nature*.

Abroad, the *Comptes Rendus* of the Academy of France dates back to 1835, but before that to 1666 as *Mémoires et Histoires*. There were various Bulletins and Annales, many of them associated with small centres of industry, for instance, *Annales des sciences physiques et naturelles d'Agriculture et d'Industrie de Lyons* 1838. There were many small separate societies scattered through Europe, but their publications were rarely of much merit. Although the volume of technical literature nowadays is far greater, the sources are less scattered.

The literature available to an inventor like Bessemer in 1850 was, in fact, very scanty ; Dr. Ure's *Dictionary of arts, manufactures and mining* was his main standby (fourth edition 1852). How different the literature available to a man like Carothers, whose work led to the nylon products. He could have available to him first and foremost *Beilstein*, that great German compilation which records and systematizes all the mass of knowledge of the compounds of carbon gathered by organic chemists all over the world. American *Chemical Abstracts* were available to him providing a complete abstract of practically all chemical papers (which are of any permanent value), from which he could get to the source of the information. He could refer to encyclopædias of industrial chemistry or the great text-books of physics (*Wien and Harms* or *Geiger and Scheel*), and data tables such as *Landolt-Bornstein*, etc. At a moment's notice in a good library, an organic chemist working in an industrial research laboratory should have little difficulty in getting all the information he needs nowadays.

The chemical engineer might have a little more difficulty ; he might be presented with quite a number of problems to which he could not find the answer so easily in the literature. Nevertheless, the *Chemical Engineer's Handbook*, *British Abstracts*, *Fuel Abstracts* and other abstracts and data tables would probably provide the greater part of what he happened to need.

It is very important that the main sources of information should not be too diversified. It is all very well to have several technical journals for each industry, but the main *new* information should be sent to the proper places and appear in the proper scientific journals. Complexity must be avoided and simplification fostered.

During the war a committee instituted by the Royal Society discussed some of the matters which were of common interest to the Empire and in which science could be of assistance. Arising out of those discussions, when the war ended an Empire Scientific Conference took place. One of the issues before the Conference was the development of scientific information services and it was decided to prepare for a special conference at a later date. This Scientific Information Conference was held in 1948. Some feared that its effect might be to impinge on the rights of societies as guardians of scientific literature, for radical views were to be discussed as to the publication of scientific work. But the Conference was a remarkable success. It made a number of recommendations, it examined but discarded revolutionary changes, and decided on the steps needed to evolve along existing lines, to improve and to simplify. It was left for a committee to implement the recommendations and that committee has now completed that task, so far as it has been able. One important feature of the committee's work is that it has maintained close touch with the information services in Commonwealth countries. There were nineteen representatives of those countries at the Conference in 1948 and the Committee had the advantage of continuing that co-operation. Dr. Mallock for Canada and Mr. Cummins for Australia served throughout on the Committee and were of tremendous help to its work. Such links are a great asset, for after all we are a Commonwealth.

This lecture is not designed to give an account of the Conference or of the Committee, but a brief outline can be given of what was accomplished. A review of the way in which scientists have considered their information problems will perhaps help in considering the wider range of industrial problems.

The Conference had agreed that a great many defects of scientific papers dealing with original work were due to inadequate PREPARATION OF MANUSCRIPT. The Committee set up a Sub-committee under the Chairmanship of Professor G. L. Brown, F.R.S., to enquire into this and they cast their conclusions into the form of a pamphlet, *General notes on the preparation of scientific papers*. The main Committee saw that it was brought to the notice of editors of journals and Deans of Faculties in Universities, and a large number of copies (4,000) have been issued. Unesco asked for permission to make use of it in other countries. This action should be useful in improving the character of scientific publications and a help also to editors of journals who have to cope with authors who do not always realize the way their work can best be presented. At the same time, an effort was made to improve the rather desperate position in the PRINTING of scientific papers. The shortage of trained compositors and the restriction on the numbers of apprentices permitted was, and still is, causing delay in publication. Without the efforts which have been made by Professor Zuckerman's Committee, which worked hand in hand with the Scientific Information Committee, the position might have been much worse than it now is. (Though it is far from good yet—costs have risen and paper scarcity is another trouble.)

Another issue debated at the Conference was the need for SEPARATES

EGERTON : INFORMATION AND INDUSTRY

and copies of particular papers by the individual scientist and the fact that the copyright laws restricted libraries from providing the facilities which the scientists so greatly needed. This was a rather difficult problem and required careful study, particularly in regard to the legal aspects. Eventually the main difficulties were resolved and a carefully worded *fair copying declaration* was printed and issued by the Royal Society, to which bodies could subscribe. A large number of organizations in this country and in the Commonwealth have adhered to the declaration which was in the first place made for a limited period, but at the end of the period all the adherents except two, which have for other reasons become inoperative, have re-subscribed to the declaration. I believe the action that has been taken has helped to satisfy the need which was so strongly represented at the Conference.

Further research into the uses, or rather MODE OF USAGE of SCIENTIFIC LITERATURE has been carried on by a Sub-committee under the Chairmanship of Dr. D. J. Urquhart. The little D.S.I.R. pamphlet, *Unanswered questions*, is part of the experimental study of this problem. At the time of the Conference a questionnaire survey was made, of limited scope, which produced interesting results. The Sub-committee has considered making further surveys, but various considerations suggest that it would be well to leave a more complete survey until present improvements have had time to be effective. Useful pamphlets have been issued, such as *A list of British scientific periodicals reporting original work or critical reviews*, which has had a wide circulation.

CLASSIFICATION is always a problem and the Sub-committee under Professor Bernal has given the subject close study. Gross systems of classification are, by their nature, unsuitable for universal application. This Sub-committee will be continuing its work.

Various AIDS TO INFORMATION SERVICES have been helped on, such as the British Council's *List of scientific work carried out in university laboratories* and *Guide to the research activities of the D.S.I.R.*, Aslib's *Directory to sources of information*, etc. Likewise, the problems of translation, of transliteration, of interlingual dictionaries, have been assisted. Lists of data tables in the various sciences have been provided by the National Committees. Units, nomenclature and symbols have been the subject of agreement (and in some cases of agreement to disagree, which is almost as good provided the disagreement is known and limited) between International Unions and National bodies. The report of the Symbols Committee of the Royal Society will be useful in getting greater uniformity.

The Conference was anxious that the EDITORS OF JOURNALS SHOULD COLLABORATE more closely in matters such as the format of journals, methods of referencing and many such details. It was also desirable that journals should cover the sciences adequately—i.e. that there should be proper channels for communication of any original scientific work whatever its nature. To the scientific worker it is important that there should be established channels for publication of his work so that it will be seen by others in his branch of science and where constructive

criticism of the work can be focused. This is of great importance to the advance of science. Provided a journal is fully serving its purpose in maintaining the standard of work, it is undesirable that new journals should be started unless they fill a gap or are necessary to supplement existing journals and prevent delay in publication. The machinery for ensuring this is rather haphazard but on the whole mistakes do not often arise, and in these days when the publication of scientific work does not pay its way there is little danger of undue multiplication of journals and periodicals in which original work is published. The biological journals and the medical journals in this country have machinery for co-ordination; but there is less co-ordination in the case of the journals of physics, chemistry and the engineering sciences. A conference of editors of chemical and physical journals was arranged by the Committee at which various questions were discussed; it was agreed that it was desirable to publish a CONTENTS LIST of the scientific journals for chemistry and physics which, provided it could be issued promptly (if possible even before the publication of the journals) might serve a very useful purpose. This possibility was explored but considerations of cost have prevented the issue of the contents list. The total number of chemical and physical journals reporting original work was estimated to be 334 for the world. The whole point of the issue of such contents lists is to give up-to-date awareness at the time of, if not before, the appearance of the publication—they are useless otherwise. Lists for the biological sciences are available, but they are neither complete nor up-to-date.

One of the more important services to science is that of the ABSTRACT SERVICES, and in accordance with the Conference's recommendation, an Abstracting Services Consultative Committee was set up for fostering co-operation between abstracting agencies. This Committee has been of great use, for it provided a central body on which the work relating to abstracting of other bodies (such as Unesco) could be focused. *A guide for the preparation of synopses* has been issued and is now being used in other countries. A pamphlet has also been published on references in abstracting and *A list of periodicals and bulletins containing abstracts published in Great Britain* which has run into a second edition.

The Conference pointed out the vast importance of LIBRARIES in Scientific Information Services and made various recommendations which have been attended to by the Committee. The Committee has, however, mainly passed this work on to other bodies. The Lord President's Committee on Technical Information Services produced a report on the library services of the country so far as technical and scientific information is concerned, and their recommendations have been considered and action in some directions is being taken.¹ The Library Association, too, has been active. Much importance is attached to the service which librarians and information officers can give and these questions have been under consideration.

This brief review of what has been done has omitted much, but after

¹ A similar report on technical information services was published in *The Journal of Documentation*, 1951, vol. 7, pp. 92-112.

EGERTON : INFORMATION AND INDUSTRY

three years' work with a very helpful and active Committee the opportunity of relating how science has tried to put its house in order has been welcome. Although no drastically new machinery has been created, a machine which does its work well has been oiled and lubricated here and there and it has been possible to make it run more smoothly and efficiently in spite of the increasing load with which it has to deal.

The Conference in 1948 dealt with scientific information required by the scientific worker. I tried to analyse the scientists' needs in the Aldred Lecture to the Royal Society of Arts and what is set out there need not be repeated here.¹ To-day's Conference deals with industry's need for scientific and technical information. That is not only a question of information about research, which is the same sort of problem which the scientist has to tackle, but also about problems relating to production, to distribution, and to industrial organization and management. It is easily appreciated that the problems presenting themselves to industry to-day are not very different from those which confronted the scientist, but are somewhat more extensive and diverse. There is a vast ocean of knowledge but it is not very easy to find out where to fish.

Professor E. H. Huntress, an authority on the classification of chemical literature, wrote, "We have not been willing to recognize that the necessity for organization, correlation and integration of data of scientific discovery is precisely as important as its original discovery". This organization, correlation and integration of data is essential to the industrialist; only the data comes from a wider field.

It may in some ways be a mercy that it is not the habit for industry to put into print all the details of its workings—its processes and its operations—that it is left to the integration of the balance sheet to measure their effect. There is a self-imposed limitation to the dissemination of knowledge which restricts its effect, but even the extent of this limitation is a matter of judgment. This judgment, however, depends on the integration of the information which is available. The dissemination of the information, its collection, its storage, its documentation, its sifting, its correlation and presentation, are services not very different from those which the scientist requires and the tools must be somewhat similar.

Let us consider each of these briefly—information is disseminated in scientific and technical journals and periodicals, and, in fact, in a great variety of sources, journals, reports, etc., where economic facts relating to materials, to labour, to management, and to distribution are collected. For science it was remarked that it was important that sources should not be multiplied too abundantly; industry, too, might well consider whether it would not be served better if the standard of technical periodicals could be improved and if the information was disseminated over as wide an area but through fewer channels. The collection, storage and documentation of information are matters for libraries—firms' libraries and public libraries—and here are a host of problems which you are well equipped to discuss. The problem for the small firm is

¹ EGERTON, Sir Alfred. Scientific information services. (Aldred Lecture). *Journal of the Royal Society of Arts*, 29 July, 1949, vol. 97, no. 4800.

obviously very different from that of the large organization. The sifting of information is a matter where limited abstracting services to serve special needs require development. Many Research Associations and large firms possess such a service and the information officer plays an important part, as he must also in the correlation and presentation of the information. Nevertheless, his close connection with the user of the information raises many problems because he obviously cannot be a paragon who can assess what is important in all the fields of knowledge.

There is much to do in bringing the methods applied in one field (e.g. instrumentation, control, production methods, etc.) to the notice of technologists in quite other fields. More pains should be taken to teach the language, or at any rate to explain the terms simply, for the language employed in one technical field is quite gibberish to technical people in a different field. Simple reviews and articles such as appear in such journals as *Research* aim to do this.

There is also the question of sifting and correlation of information ; how far mechanical methods can help. In these days of electronic brains, mechanical sifting and processing of information, there are considerable possibilities of coping with the rising tide of the ocean of knowledge. Ultimately, however, the use we make of it all depends on the quality of the human brains which have to deal with the information when they get it. Information fed in, if it is to be of value, must be such that it starts ideas or forms new judgments, and it can only do that if the minds into which it flows are minds which can correlate and originate. So it all comes back to the education of the mind, and perhaps to the more subtle factors which lead to producing productive minds.

THE WORKING OF AN INDUSTRIAL LIBRARY

BY GEO. H. DAVISON

Secretary, The United Steel Companies Ltd., Research and Development Department

Sheffield, 27th March, 1952

INTRODUCTION

IN preparing this short paper, I have deliberately compared the working of an industrial library with that of a public library rather than with the library of a Government Department, because any small differences which exist are less marked in the case of comparison with the latter. I hope, however, that none of my public library friends will interpret this as in any way belittling the fine service which we have come to expect from them.

Public libraries have certain accepted standards which give dignity to the library, whereas in industry makeshifts are more usual. Works libraries are far smaller and are still somewhat of a novelty. In consequence, they have more difficulty in justifying a claim to capital expenditure and usually have to undergo a long probationary period to prove their usefulness to hard-headed business men.

FUNCTION OF LIBRARY

As with most industrial libraries, we do not attempt a complete general collection, but tend to specialize in the subjects peculiar to our industry. In our case, our first duty is to the scientific staff of our own Research and Development Department, although we also provide a postal and teleprinter service for the senior technical staff of the various branches of our combine.

Admittedly, the field which we have to cover must, of necessity, be more limited than that of a public library, but it is perhaps more intensive. Our readers probably tend to be more practical in their requirements than some of the users of a public library. For instance, knowledge is rarely sought in an industrial library for its own sake. Specialist staff have already passed the stage of general background reading and only have time for the study of specific problems.

The industrial librarian is expected to familiarize himself to quite a considerable extent with the subject matter of his library. Indeed, a major proportion of enquiries is for subject matter rather than for specific publications. In our case we also make a point of following up the answers at intervals whenever new information comes to light. This major function of the industrial library has perhaps been partly responsible for the growth of industrial information officers attached to such libraries. Although many public libraries also have information officers, their main duty is to answer questions, whereas the industrial information officer has a dynamic function, in that he is also expected to

feed his public in advance of their articulate needs. In a sense he tends to become an educational officer.

A special service expected from all industrial libraries worthy of the name is the provision of summary bibliographies for the guidance of laboratory staff when planning new work.

A knowledge of foreign languages frequently leads to members of the staff being detailed for duty as interpreters and guides. I have sometimes been deprived of the help of one of my staff for several days at a time on this account. Although a welcome interlude in some respects for the person concerned, it has a devastating effect on the more normal work of the department.

What is perhaps even more time-consuming is the translation of foreign technical articles. Where these cannot be purchased or borrowed, we handle them ourselves if they are of an urgent nature, as three members of our staff are expert linguists. We take the view, however, that translations ought to be carried out for the industry rather than by individual firms, as otherwise undesirable duplication of effort can occur. In fact, I see no valid reason (beyond cost) why large public libraries should not undertake or purchase translations for the use of ratepayers instead of leaving it to individual firms to buy or prepare their own.

As a matter of interest, Appendix II contains a list of well-established sources of translations.

STAFFING

In this country a greater proportion of industrial libraries is of the size administered by one person only, although there are, of course, notable exceptions. This experience is not entirely confined to the Old World, however, for I read in a recent publication, entitled *Technical Libraries*, issued by the Special Libraries Association in 1951, that even in America the majority of libraries are administered by one professionally trained person aided by a clerical staff. It is interesting, however, to note from the results of an investigation by A. L. Nicholson, of the Pennsylvania Salt Manufacturing Company, into the position of library staff serving research laboratories, that these vary as follows :

1 to 4 library staff to serve 20 to 100 laboratory staff

1 to 9 " " " 100 to 200 " "

2 to 13 " " " 200 to 400 " "

The library and information section servicing the 180 laboratory staff of the Research and Development Department of my company comprises eight people, namely :

Two information officers and two shorthand-typists

One chartered librarian and three assistants

the library staff being responsible to the chief information officer who, in turn, is responsible to me as secretary of the department.

CONTENTS OF LIBRARY

Books

It is perhaps sufficient just to mention that books are kept in class order on shelves with open access.

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Our method of book selection is to peruse all announcements by publishers in our field, to note all reviews and also to study the accession lists of other organizations. We also have an ideal arrangement with a local bookseller who sends us a weekly parcel of new technical books on sale or return. We have the benefit of experts in each field whom we can consult in case of need.

Elementary and intermediate books must, of course, be carried by public libraries, whereas on the whole we do not buy many of these. Our senior research staff are picked men with an intimate, specialist knowledge of their subjects and would therefore have little use for elementary or intermediate books. On the other hand, the company's educational schemes, involving the annual training of individuals of all grades, do give rise to a demand for different types of books from those intended for the specialist and to meet this demand libraries attached to the education department at each works are being created. It is ultimately intended to link these up with our own library, but this stage has not yet been reached.

Pamphlets

Unlike public libraries, we attach great importance to pamphlets, which outnumber books to the extent of 10 to 1. They are kept in dust-tight boxes on a separate series of shelves from the bound books, but arranged in the same class order as the books. As extensive use is made of them, each pamphlet is accessioned and indexed in precisely the same way as the bound books. For safety, many public libraries have adopted the practice of binding a number of pamphlets in one and the same cover. We consider this to be a disadvantage in an industrial library, because staff object to carrying a bound volume home for study for the sake of a very small portion of it. The handy pamphlet is an even greater advantage in the case of a postal service such as we have with our various branch works. As I have mentioned on a previous occasion, there is a lot to be said for the proposal of Professor Bernal that the individual paper should be the future basic unit of publication instead of the journal.

As we usually order 100 reprints of every technical paper by our staff, for circulation to individuals and organizations, we are able to attract in exchange copies of papers by other people.

Periodicals

Writing in *The Library Association Record* of January, 1952, Dr. D. J. Campbell, librarian of the Royal Cancer Hospital, states (in my view erroneously) that in nearly all special libraries periodicals are the largest and most important part of the stock. On the other hand, I agree with his statement that the efficiency of a special library is very largely the efficiency with which it utilizes its stock. In the Special Library Association's 1951 book on technical libraries, the opinion is expressed that the completeness of periodical files is a true indication of the worth of the whole library collection. I share this view ; in fact, continuity has always been one of my hobbyhorses, as I am dead against light-heartedly starting or stopping major subscriptions.

The public librarian has a far easier task than the industrial librarian in that in the former case the periodicals are read in the library, whereas this is very rarely the case with the industrial library.

Now that the whole of our research and development staff have been housed in the new Swinden Laboratories, in Rotherham, we have instituted the practice of displaying :

weekly periodicals for two days,

monthly and quarterly periodicals for one week,

in the reading room before releasing them on a fixed circulation basis. I am not quite happy about the merits of this procedure in our case, but propose to allow this system to run for a prolonged trial.

We have laid it down as a rule that no periodical should pass from reader to reader direct, but should always come back to the library for recording. Before we insisted upon this practice, we had no means of tracing the whereabouts of missing periodicals.

Owing to certain members of staff allowing periodicals to pile up unread on their desks, we have had to institute a system of exchanging the new issue for the old (if not already returned), leaving it to the individual to ask again for its loan when he has more time.

A printed form is attached to each periodical to enable the reader to draw the attention of other people to the items of special interest.

Patent Specifications

We attach considerable importance to these both as a source of technical information and also for commercial reasons. We select those current patents which have a bearing on our own industry and circulate our own abstracts to a wide circle of staff at the various branches of our combine. We could not possibly wait for the appearance of the official abridgments published by the Patent Office, as these are far too late except for permanent records.

Incidentally, we subject-file these abstracts and have found these invaluable on many occasions since the outbreak of the last war. You may remember that work on abridgments and indexes ceased or slowed down considerably during the war due to the Patent Office staff being seconded for other work. The position is now gradually improving, thanks to the efforts of the Aslib Patents Sub-committee.

Standards and Specifications

Every care is taken to ensure that the library possesses the latest information on all standards or specifications affecting our interests. This is considered to be a vital service.

Research Reports

The industrial librarian usually has access to internal reports on the research work of his company as well as on that of the research associations with which his company is linked up. These are only intended for internal use and where these reports are highly confidential, special precautions are taken.

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Minutes of Technical Committee Meetings

Another valuable source of information consists of the minutes of technical committees of all kinds, both internal and external. In our own case, we have instituted the practice of a news service in our monthly bulletin to the key staff of the combine, in the form of a summary of each meeting affecting our interests. It is, however, necessary to exercise caution as to how far such information can be released.

LIBRARY METHODS

Accessioning and indexing

I will not bore you with descriptions of our decimal classification system, nor is there anything particularly novel in our methods of accessioning, indexing, and so on, except perhaps our use of a spirit duplicator so that one and the same text will serve for accession, subject, author and classified catalogue cards, thus minimizing the number of cards to be checked. It will be appreciated that the cards prepared in this way have to be supplemented individually by the addition, at the top, of varying index headings such as class number, accession number, author(s) or subject(s) according to the use to which each card is intended to be put.

Loans

We have loan cards for each publication, individual borrower cards and a loan register. The routing of periodicals is recorded by means of a visible index system.

Quite an important percentage of our reference or text-books is housed in bookcases within the laboratory concerned and recorded by us as on 'permanent loan'. The person in charge in such laboratory is supplied by us with sub-loan cards, so that he has a record of borrowings by the members of his staff, whilst a member of our library staff makes a quarterly physical check of the stock carried on permanent loan.

When visiting Boots' library in Nottingham recently I was very interested to see that publications intended for circulation to works departments were inserted in stout woven envelopes fitted with zip fasteners down the side and with cellophane-covered address pockets in the centre. These envelopes have a very long life and can have the address changed at will by the insertion of a card in the said pocket.

When an industrial librarian is asked for a publication or other information on a particular subject, the onus is on him to find it externally if he does not possess it, whereas a public library only sets borrowing machinery in motion on request, not as a duty. Speed is vital to the industrial librarian who usually cannot afford the time taken by the regional procedures of public libraries but applies direct, say, to the N.C.L., Science Library or other national bodies when he cannot find the desired publication locally. In our case, we frequently make use of the teleprinter service to our London office, who then pass on enquiries by telephone, thus saving at least a day.

During a Library Association Conference in Nottingham last Septem-

ber, I was rather intrigued to hear one speaker question the value of the present-day emphasis on inter-library co-operation from the standpoint that it might be a temptation to the small library to make undue use of other libraries purely as an economy measure.

Methods of marking books

We use a stylo electric pen to mark the spine of publications and also write the same markings on the title page in ink.

Confidential Monthly Bulletin

The compilation of our monthly bulletin is quite a major feature. In addition to the news service concerning internal and external committees already referred to, summaries are included of:

The work of our own laboratories ;

Recent translations of foreign technical articles ;

Current patent specifications (British and American) ;

together with a list of papers read or published by members of the staff of the combine. Finally, the bulletin includes an extensive list of accessions to the library since the previous issue.

Searches

Despite open access, our research staff prefer the library staff to find their subject matter for them, so much so that more of our work reaches us by telephone than by personal visits. We are trying to encourage research staff to adopt the habit of looking for their own material, but the counter-argument is that it is quicker and more economical for the librarian to do this than for the specialist researcher who is less familiar with library practice. This has the drawback that it encroaches unduly on the time of the library staff required for the mechanics of their job.

Incidentally, we stress the need for enquiries to be specific, as much time tends to be wasted if there is the slightest misunderstanding as to what is wanted.

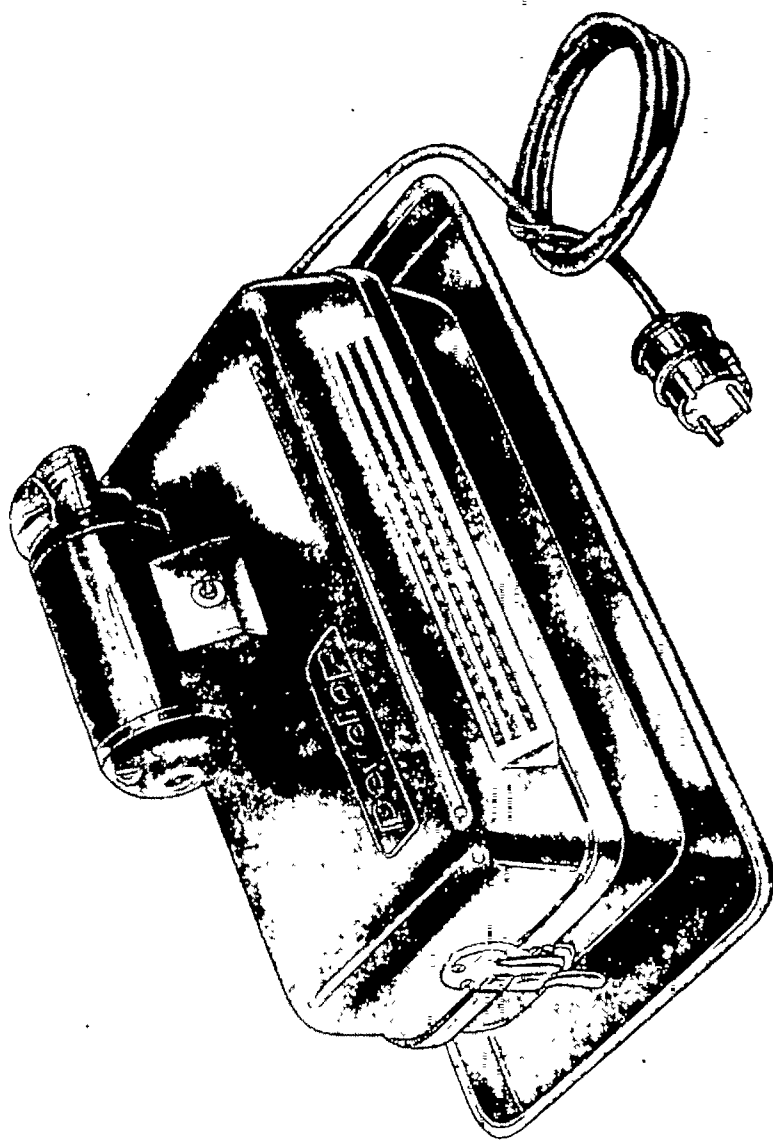
Abstracting

We, of course, make full use of published abstracts in our field (see Appendix I). In many cases, however, these published abstracts reach us so belatedly that we find it advantageous to issue our own abstracts at the time of receipt of the original articles. Our practice is to issue each abstract on a separate sheet for ease of subject filing. Such abstracts go directly to the members of staff most likely to be interested, whereas the monthly Bulletin (which also contains abstracts) has a large, fixed circulation. This results in a considerable number of requests for loans.

A recent survey by the American Institute of Physics¹ largely confirmed an earlier conclusion based on a 1922 questionnaire² that both physicists and scientific librarians were in the main satisfied with existing services. Abstracts were found to be rarely used as a substitute for the original

¹ DWIGHT GRAY, E. *Review of Documentation*, vol. 18, no. 1, March, 1951, pp. 17-20.

² "The usefulness of analytic abstracts" (*Science*, vol. 56, pp. 678-680, 1922).



Photograph of new Ozarapid automatic developing machine for photocopying. Clean and simple in operation—no liquid baths—no drying equipment—no special darkroom.

papers, although a large percentage of users preferred informative to indicative abstracts. The only serious complaint was a desire for earlier publication, preferably of author abstracts.

EQUIPMENT

Photographic facilities

We enjoy the facilities possessed by the Research Department in the form of a photographic section. Probably the biggest demand on the latter is for photocopies of extracts from publications.

We formerly used a Ruthurstat machine for this purpose, but this had the disadvantage of being a wet process (which is both lengthy and disliked by staff because of the long periods of dark room work); the reproductions also tended to curl up despite the use of a rotary drying apparatus. We have, therefore, invested in an Ozarapid automatic machine.¹ After exposing a sheet of Ozarapid negative paper in contact with the text to be copied, the negative paper, together with a sheet of transfer paper, is fed in, sandwich fashion, through the slots in the electrically operated machine and emerges at the other side in a finished condition. The paper used is much thinner than that usual with the Ruthurstat process and does not curl. I can strongly recommend this to any library.

We possess a Rotaprint camera and make our own lithographic stencils for use on Rotaprint rotary duplicators. These give a lithographic reproduction as good as printing, but are not economical for small runs.

We also have a microfilm camera and reader, but do not find the latter to be very popular. Usually, our staff insist upon the preparation of enlargements, so that they are not limited to the particular room housing the microfilm reader.

Duplicators

In addition to duplicators of the wax stencil type, we have a "Banda" spirit duplicator which, as already mentioned, is used extensively for our index cards.

Dictating machines

We find the Emidicta paper disc machines invaluable in connection with the preparation of abstracts; they at least double the output of the typist, in that she has not to spend time taking shorthand notes and can check her own work.

FUTURE LIBRARY TOOLS

I would like to mention a new library tool which has been proposed. It is in the nature of a mechanical memory which can be used for translation purposes or for producing information automatically on any subject.

One version of this suggested by Mr. Warren Weaver, of the Rockefeller Foundation, is a machine on the lines of the war-time deciphering

¹ Marketed by the Ozarapid Company, Ltd. (Ozarapid Division), 62 London Wall, London, E.C.2. Price £82 18s.

DAVISON : AN INDUSTRIAL LIBRARY

devices, which would treat a foreign language as if it were a special code for English.¹

Another version by two British workers (A. D. Booth and R. H. Richens)² is a translator based on the storage of foreign words and their English equivalents in the memory unit of a mathematical machine. After reading the material to be translated by means of a photo-electric scanning device, the machine would look up the words in its built-in dictionary and pass the translations on to electric typewriters. If the machine came across a strange word not stored in its dictionary it would chop up the word until it found recognizable segments or syllables and give the meanings of these ; from these fragments the meaning of the whole word might be deduced.

A criticism of machines of this character is that they obviously could not do justice to the linguistic niceties of literary English, as translations made in this way would naturally tend to be crude in style.

Yet another development of this mechanical memory theme which it is claimed would place us on a new frontier beyond the present barrier to intellectual progress, is an idea published by Colonel Fred L. Walker³ of an automatic electric library based on :

- (1) The 'Electrecord'—an electronic recording 'cell' in which visual or oral information can be stored electrically and which can be made to play back or reproduce the information.
- (2) The 'Autolibrarian'—an electronic mechanism like a dial telephone system which, when a particular code signal is dialled, will instantly select from several million 'electrecords' all those that correspond to the code and cause them to be played over a radio loudspeaker, television screen or automatic typewriter.

If these ideas should ever reach fruition, the librarian of the future will have to possess yet another qualification, namely : that of a super instrument mechanic.

Perhaps a more fruitful line of development at the present time would be to devise some means of ensuring that worth-while information is not only made available but is assimilated. Whether this means that individuals will have to narrow their fields in order to give themselves more time to read critically is a moot point, which I must leave you to decide for yourselves.

¹ Translating Machines. *Scientific American*, December, 1949, p. 30.

² *ibid.*

³ Blueprint for knowledge, by Col. Fred L. Walker, Jr. *Scientific Monthly*, February, 1951, 72, 90-101.

APPENDIX I

List of Abstracting Journals taken by The United Steel Companies' Library.

AMERICAN CHEMICAL SOCIETY—*Chemical abstracts*.

AMERICAN SOCIETY FOR METALS—*Metals review*.

British Abstracts—B.I. Chemical engineering, fuels, metallurgy, applied electrochemistry and industrial inorganic chemistry.

C. Chemistry, physiology, biology and experimental medicine.

BRITISH CAST-IRON RESEARCH ASSOCIATION—*Bulletin and Foundry abstracts*.

BRITISH CERAMIC RESEARCH ASSOCIATION—*British ceramic abstracts*.

BRITISH COAL UTILISATION RESEARCH ASSOCIATION—*Monthly bulletin*.

BRITISH INSTITUTE OF MANAGEMENT—*Management abstracts*.

BRITISH NON-FERROUS METALS RESEARCH ASSOCIATION—*Bulletin*.

BRITISH STEEL FOUNDERS' ASSOCIATION—*Abstracts*.

Cleaver-Hume Technical Article Index.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH—*Atmospheric pollution bulletin ; Fuel abstracts ; Water pollution abstracts*.

The Engineers' Digest.

ENGINEERING INDEX INCORPORATED—*Engineering index (Ores)*.

Index Aeronauticus.

INSTITUTE OF CIVIL ENGINEERS—*Railway abstracts*.

INSTITUTE OF METALS—*Metallurgical abstracts*.

INSTITUTION OF ELECTRICAL ENGINEERS—*Physical abstracts, Electrical engineering abstracts*.

IRON AND STEEL INSTITUTE—*Journal of the Iron and Steel Institute*.

Kodak Abstracts.

McGraw-Hill Digest.

METROPOLITAN-VICKERS *Technical News Bulletin*.

MOTOR INDUSTRY RESEARCH ASSOCIATION.

Nickel Bulletin.

Operational Research Quarterly.

WOODALL-DUCKHAM VERTICAL RETORT & OVEN CONSTRUCTION COMPANY (1920), LIMITED—*Technical Press Review*.

See also Publication No. 235 (1949) of The International Federation for Documentation for a complete list of current specialist abstracting and indexing services, arranged according to the Universal Decimal Classification.

DAVISON : AN INDUSTRIAL LIBRARY

APPENDIX II

Sources of Translations

(Extract from *Technical Libraries : Their Organization and Management*, published by the Special Libraries Association, 1951.)

HENRY BRUTCHER, 2185 North Marengo Avenue, Altadena, Calif. Translations in the field of metallurgy only. Maintains stock and can supply classified lists of papers available.

CHARLES A. MEYER & ASSOC. INC., Upper Nyack-on-the-Hudson, Nyack, N.Y. Has specialized in translations of German documents taken during the war, specifically the reports of the Technical Oil Mission and the Officer of Technical Services. Will do special orders.

CONSULTANTS BUREAU, 153 West 33rd Street, New York 1, N.Y. Translation of eight languages into English is offered, also subscriptions to English translations of Russian periodicals in field of chemistry.

CARL DEMRICK, Translation Service, 53 South Broadway, Yonkers 2, N.Y. Translations are made to order from most of the foreign languages.

WERNER JACOBSON, 334 South Mozart Street, Chicago, 12, Ill.

ASSOCIATED TECHNICAL SERVICES, P.O. Box 271, East Orange, N.J.

BROOKHAVEN NATIONAL LABORATORY, Associated Universities, Inc., Upton, N.Y. A file of translations from Russian journals is maintained ; these may be borrowed. Also publish *Guide to Scientific Periodical Literature*.

THE JOHN CRERAR LIBRARY, 86 Randolph Street, Chicago, Ill. As part of the research service established in 1947, translations of foreign language articles will be made on order.

CENTRAL CATALOG OF SLAVIC TRANSLATIONS AND ABSTRACTS, Union Catalog Division, Library of Congress, Washington 25, D.C. An index to the location of translations is maintained.

ENGINEERING SOCIETIES LIBRARY, 29 West 39th Street, New York 18, N.Y. Orders for translations in virtually any foreign language are accepted at rates varying with its difficulty.

KRESGE-HOOKER SCIENTIFIC LIBRARY SERVICES, Wayne University, Detroit 1, Mich. Translations are made to order from thirteen languages. A file of translations is maintained and members of the Corporation can obtain copies for the price of copying.

THE IRON AND STEEL INSTITUTE, 4 Grosvenor Gardens, London, S.W.1, England. Translations are made of important articles in the field of iron and steel metallurgy, announcements of which are made in the journal. Copies are available at nominal cost.

THE GOVERNMENT LIBRARY—WITH SPECIAL REFERENCE TO THE LIBRARY OF THE SAFETY IN MINES RESEARCH ESTABLISHMENT

BY E. B. SMITH, A.L.A.

Librarian, Safety in Mines Research Establishment

Sheffield, 27th March, 1952

THE libraries of Government departments are receiving increasing attention in professional literature, and informative papers have been published by Mr. A. Agard-Evans (1948), Mr. D. W. King (1949), and Dr. A. J. Walford (1950). In this short paper I intend to refer briefly to the contribution of Government libraries to our national system of libraries and information services, and to describe some features of librarianship in a Government research library.

The Government libraries

The 1949 edition of *Government Libraries*, a restricted guide compiled to facilitate the inter-departmental lending of, and reference to, books and official publications, includes more than a hundred separate libraries and is not meant to be exhaustive. The inclusion of all libraries in receipt of Government financial support would raise the figure to well over 300. The libraries listed hold an aggregate book stock of over three and a half millions, without including the five millions of the British Museum and the two millions of the National Library of Scotland. These figures represent a handsome section of the country's special book resources, covering a range of subjects identified with the comprehensive interests of government. Also worthy of note are special collections of other material such as the Central Office of Information's unique collection of films and 750,000 photographs and the Imperial War Museum's two and a half million military prints. During the last week a new edition of *Government Libraries* has been published which, I am happy to say, is not restricted and may be obtained from the Stationery Office, price 7s. 6d. This edition reveals an overall increase in the figures I have quoted.

Access to the contents of Government libraries may be had in varying degrees, according to security and other regulations affecting the various departments. Many loan through the National Central Library and the supplementary lending scheme of the Science Library, most give sympathetic consideration to requests from bona fide research students, particularly when presented through the heads of recognized institutions. Mr. L. M. Harrod (1951) provides information on availability of the stock in the libraries of most departmental headquarters. Provincial establishments normally conform to the rules of their headquarters' libraries.

Government librarians are actively participating on the committees of

E. B. SMITH : A GOVERNMENT LIBRARY

co-operative movements, ranging from Unesco to the local committees of professional associations. Their contributions, in special fields, of reviews, bibliographies and abstracting publications are familiar to most librarians and information officers. Many act as Aslib representatives for their Departments. Librarians from many Ministries formed the main body of contributors to the Easter Vacation Course on 'Government information and the research worker', held at University College, London, in April last year.

The Government librarian has membership of the Institution of Professional Civil Servants. This body is officially recognized as the normal vehicle for representations on conditions of service.

The Government librarians' own group is the Circle of State Librarians, whose inspiration was the informal group associated with the illustrious Panizzi. This is an appropriate vehicle for representations to authority on certain matters affecting developments in library economy. Information about Government libraries is published in the *State Librarian*, the organ of the Circle, edited by Mr. Frank Hickman, Chief Librarian of the Ministry of Fuel and Power.

The Safety in Mines Research Establishment

The importance of library service has always been recognized by the Safety in Mines Research Establishment.

The Establishment has antecedents in the work of such stalwart pioneers as Sir Humphrey Davy and Michael Faraday. Research into mine safety was organized at the beginning of the century and Mr. Allan Greenwell had established a research library for the Safety in Mines Research Board before the publication of the first annual report (S.M.R.B., 1922). A field station for large-scale explosion experiments was established at Harpur Hill, near Buxton, in 1926, and the headquarters and laboratories were established in 1927 at Portobello Street, Sheffield, in close proximity to the Applied Science Department of Sheffield University. The Minister of Fuel and Power assumed responsibility for research and testing, concerned with health and safety in mines, in 1947. The library then became a part of the Ministry's library services.

The library's subject interests are dictated by the research and testing work of the Establishment. The research falls into three broad groups.

Sections of the engineering group are interested, for example, in problems of haulage underground ; in the metallurgical aspects of mining equipment and in non-destructive testing methods ; in the development of new types of roof supports and in the use of new materials for this purpose ; and with the design, testing and maintenance of winding and haulage ropes.

A group of sections interested in explosions, fires and similar hazards undertakes research into the prevention of coal-dust explosions, the ignition hazards of sparks and the intrinsic safety of electrical equipment. The origins and propagation of fire-damp explosions and the hazards from explosives used underground are investigated. Rescue apparatus and methods of analysis of mine atmospheres are studied and improved.

Health research involves testing equipment for dust suppression and developing routine methods of sampling airborne dust. The physico-chemical properties of the constituents of mine dusts are investigated and mineralogical properties of airborne dust are examined by X-ray diffraction techniques and particle size and shape by means of an electron microscope.

Assistance in planning experiments and in the examination of data obtained underground and in the laboratory is given by a mathematical section.

The Establishment's experience in certain fields is extended into research outside mining; for example, in testing flameproof electrical equipment for all industries and on research into factory dust explosions.

The staff of the Establishment numbers about 250, some two-thirds being scientific or technical personnel. A library service is provided at Sheffield and at Buxton.

The library's function

The library's contribution to these programmes of research is to provide another laboratory, where research into the wide fields of scientific and technological literature, bearing on our work, ensures the rapid and accurate production of information on a specific subject. This is achieved by utilizing up-to-date apparatus and modern techniques of cataloguing, classification and indexing. The library is well equipped with standard reference works, abstracts, and world scientific literature. These are supplemented by our own abstracts, arranged on cards by the Universal Decimal Classification. Together with the classified catalogue and the extensive collection of our own bibliographies, these items provide the basis of our service.

The stock aims at complete coverage in our special field and contains standard works in the main fields of pure and applied science. Some 250 periodical publications are currently received. Our related interests are so wide that considerable borrowing is necessary to provide all the material required by our research scientists. To attempt complete coverage of all fields of science is a vain and unnecessary effort for a special library. The expansion of library co-operation is recognized as a vital and urgent aspect of special librarianship. I cannot exaggerate our appreciation of the *Sheffield scheme for the interchange of technical literature*, referred to by Mr. J. Roland Smith. We are grateful to its sponsors, who have established, so successfully, one of the most productive applications of co-operative librarianship in this country. Co-operation exists only by reciprocity, and we are always prepared to provide information within our field and access to our stock when no betrayal of confidence is likely to be involved. I have referred to the happy situation of our proximity to the Applied Science Library of Sheffield University. We engage in the National Central Library Scheme and make full use of the facilities of the Science Library. Close contact is maintained with the libraries of other Government departments. Co-operation with research workers in our field abroad has long been a feature of the Establishment's

E. B. SMITH : A GOVERNMENT LIBRARY

interest : the S.M.R.E. Library has benefited from established contacts and maintains and extends them by international exchange of publications.

Our main function is, therefore, the acquisition of material of direct application and the assembly of indexes for the identification and location of every piece of information that is potentially useful to the mining safety specialists of the Ministry of Fuel and Power. The acquired information must be disseminated by means of accession lists and circulated bibliographies and by the distribution of selected abstracts. The research librarian is a member of a research team. His enthusiasm for the research programme must match that of the scientific investigator. It is not enough to establish a collection of guided literature. Information of value must be selected from the literature and brought to the personal attention of the appropriate investigator. It has long since proved impossible for the scientist, engaged in practical experimental research, to devour the literature of his subject as did his predecessors. The research librarian and information officer must accept responsibility for pre-digestion and the industrial hazard of mental indigestion. He must be acquainted with the current and the long-term interests of each member of the research staff and must keep pace with their assignments in particular programmes. It is incumbent upon him to extend his knowledge continually in the special field and not to hesitate to ask for a clear explanation of the scientist's requirements.

To maintain the required degree of personal service, a card file of requests and queries is arranged under the names of the readers and is checked daily. Queries, when completed satisfactorily, are transferred to a classified information file. These and other features of special librarianship are not the sole prerogative of Government libraries and have been described with sufficient frequency. Our problems, and the increasing mechanization of information services, are described provocatively in current papers by Mr. W. H. Carlson (1952) and Herr F. Kayser (1951). Every type of library is subjected to an increasing pressure of demand in direct proportion to its efficiency. There is a particularly intense pressure on the library of a compact research establishment. Careful documentation is necessary for even the shortest item having information value. Analytical catalogue entries are essentials rather than refinements. We use a unit card system for cataloguing. Mechanical duplication, preferably by photographic methods, prevents the accumulation of arrears. The application of specific classification and subject indexing, revealing every aspect, demands an exhaustive examination of our material.

A large number of our accessions is by gift and exchange. Book purchase is organized through Her Majesty's Stationery Office. Whatever the source, the routine of accession must bring the required item to the reader with the minimum of delay—without sacrificing essential records. Our order form, carrying details of publication, price, method of selection and date of ordering, is duplicated to provide a unit stock register. Our methods of book selection utilize the normal tools of periodical reviews, publishers' catalogues, scientific library lists and such sources as the *Daily List of Government Publications*. These enable the librarian to antici-

pate a known demand, but the majority of our purchases are made at the direct suggestion of the scientific staff, normally at a point where they are immediately essential to progress in a research programme and no delay can be allowed.

Translation and Abstracting Service

The dissemination of current scientific information is impossible without an efficient on-the-spot translation service. The volume of work required by a research establishment may be appreciated from the fact that our production of translations of scientific papers now totals well over 2,000. Most modern languages are covered, in co-operation with our Headquarters' Library Translation Service and other Government departments. The service is organized by methods that are common to most types of information service. A record is maintained of the progress of each demand from a preliminary search for an existing translation to reproduction and distribution of the finished work. The collection is arranged in a vertical file, indexed and included in the classified catalogue. Economy demands a great degree of co-operation with other translators. This is achieved partly through the Fuel Abstracts Consultative Panel. We are very much interested in such wider co-operative schemes as the proposed *Commonwealth Index of Scientific Translations* and the co-operation in Russian translation, organized by the Department of Scientific and Industrial Research (D.S.I.R., 1949). Some 150 abstracts are added to our U.D.C. card index each month and a large selection of these is listed in *S.M.R.E. Abstracts of Current Literature*, copies of which are distributed at home and abroad. This work is accomplished by a small, skilled team of translator/abstractors. Translator/abstractors are members of the library staff but have their own distinctive grade.

Technical Information Section

S.M.R.E. is fortunate in possessing a well-organized technical information section. This section disseminates the current results of the Establishment's research, in the form of published papers, research reports, lantern slides and films. The experience and excellent equipment of this section is used by the library for such services as photo-reproduction, the provision of shelf-labels and guides and liaison in all matters relating to photographic technique and printing. Such technical assistance is invaluable in matters like the introduction of microfilm apparatus. The library co-operates with the technical information section in the preparation and classification of material for publication. Our bibliography of publications (S.M.R.E. 1950) is being revised.

Library forms

Unfortunately no library can pursue its lawful business without using a variety of forms. I may say that these are kept to the bare minimum. Their design is, of course, a happy exercise for every budding administrator. Having obeyed all the laws of clarity, simplicity, brevity and

E. B. SMITH : A GOVERNMENT LIBRARY

directness, the Government librarian submits his brain-child for the examination of the department's Organization and Methods Division. Organization and Methods Division rarely fail to reduce the size, the amount of print and the quality of the material, producing, even so, a version of the original which fulfils its purpose exactly. Incidentally, an official publication on the design of forms (Treasury, Organization and Methods Division, 1951) is a comprehensive guide.

General service

By availing itself of the Department's general office services the library is enabled to achieve a documentary output which would be impossible for its own clerical staff.

Book-binding

Binding service for Government libraries is undertaken by Her Majesty's Stationery Office. We are served conveniently by the branch of H.M.S.O. in Manchester. Work is produced faithfully according to rubbings or samples provided by the librarian. Where the librarian requests some unusual variation from normal standards, his specification is carried out. High standards have been maintained despite fluctuations in the supply of materials.

Furnishings and fittings

The library relies on the services of the Ministry of Works for the provision of furniture and fittings. Skilled workmanship is available in every trade and there is a willingness to act on the professional advice of the librarian. My experience has been one of full assistance from the Ministry of Works where provision of material is justified. Recent alterations and additions to the library at Sheffield have included the renovation of the wood-block floor, the provision of standard island bookshelves, alterations in wall-shelving, and the provision of steel cupboard space for storage. The library has been rewired completely and new and adequate lighting installed. Structural rearrangements in heating have ensured an economic and improved supply. A new service unit is being constructed.

Office equipment is selected from a wide range of Government apparatus which supplies most items. When required, no difficulty is experienced in arranging for the supply of items from normal library suppliers ; provided, again, that the expenditure is justified.

Messenger service

Inter-library co-operation and internal distribution demands an efficient messenger service. We have the very dependable services of Government Messenger and Paper Keepers' grades. The Paper Keepers perform valuable duties such as filing and checking periodical holdings, arranging material in the book-stack, and do numerous routine tasks of pasting, labelling, parcelling and the rest.

Responsibility

Library service constitutes a part of the Ministry's common services. The librarian is responsible to the Director and his senior scientific staff for the library's contribution to the research programme. In matters of librarianship the Ministry's Chief Librarian is responsible for the Department's libraries. Suggestions are invited from staff organizations. These arrangements, together with the opportunities for close liaison with the scientific staff, enable the library to fulfil its function without a formal library committee.

International Conference

The experimental station at Harpur Hill will be the location of the 7th International Conference of Directors of Mines Safety Research to be held in July of this year. The library reflects the increased tempo in the documentation of our research for the occasion and there is an increasing pressure of translation work from the various languages of the delegates' contributions. Recognition of the part played by library service and the exchange of information is given by the inclusion of a special discussion on this aspect of research as a part of the programme.

REFERENCES

- CARLSON, W. H. (1952). Co-operation ; an historical review and a forecast. *College and Research Libraries*, vol. 13, no. 1, pp. 5-13.
- DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH (1949). *Translated contents list of Russian periodicals* (issued monthly). London, D.S.I.R.
- EVANS, B. Agard (1948). Regional libraries of the Ministry of Works. *Library Association Record*, vol. 50, p. 331.
- HARROD, L. M. (1951). The libraries of Greater London ; a guide. London, Bell.
- LIBRARY ASSOCIATION (1950). Librarians in Government departments. *Library Association Record*, vol. 52, p. 91.
- H.M. TREASURY, O. & M. DIVISION (1951). The design of forms. London, H.M.S.O.
- H.M. TREASURY, O. & M. DIVISION (1952). Government libraries. London, H.M.S.O.
- KATSER, F. (1951). The research library as a modern information centre. *Rationalising*, vol. 2, no. 8, pp. 203-6.
- KING, D. W. (1949). Government departmental libraries. In *The libraries of London*, pp. 115-24. London, Library Association.
- SAFETY IN MINES RESEARCH ESTABLISHMENT (1950). Bibliography of publications and reprints. 1st edition, with annotated addenda. Sheffield, S.M.R.E.
- SAFETY IN MINES RESEARCH ESTABLISHMENT (1952). *S.M.R.E. Abstracts of current literature*. New series (issued monthly). Sheffield, S.M.R.E.
- WALFORD, A. J. (1950). Government libraries. *Library Association Record*, vol. 52, pp. 410-15.

THE WORKING OF A PUBLIC SCIENTIFIC AND TECHNICAL LIBRARY

By J. ROLAND SMITH, F.L.A.

Librarian, Commercial and Science & Technology Libraries, Sheffield

Sheffield, 27th March, 1952

THIS paper bears so comprehensive a title that, if I were to do it anything like justice, there would be no time for anything else this morning. However, within the limits of the time allowed me, I hope to say something about a public scientific and technical library I know quite well—that of Sheffield—which may explain why its functions differ from those of special libraries, and to some extent how they are different. First of all, a word on our background.

Public technical libraries (and by this I mean reference, not home-reading libraries) are found only in the larger cities and boroughs of this country. A library of this kind is a department of the local public library, whose income depends upon the amount from the rates which the City or Borough Council feels able to devote to library services. As the public library is a spending, not an earning department, its income is always somewhat restricted, and in many towns is usually only sufficient to maintain the familiar lending library, with the possible addition of a small general reference library. In such cases, with the exception of a few reference works, technical and scientific books are placed in the lending library: there is no money to spare for their duplication in the reference department.

The public technical library is, therefore, a local service, locally financed, and must study and satisfy the needs of its supporters—the ratepayers—much as the special library does. But whereas the special library is part of an organization whose functions and needs are known with some accuracy, and whose personnel—the users—are engaged in work relevant to it, the public technical library's field is much less well-defined. It is virtually a whole city's industry, and, in addition, the very diverse interests—elementary, intermediate and advanced—of its citizens, resulting in an astonishing variety of demands upon it. To equip his library for this as well as he can, the public technical librarian must listen constantly to his clients' problems, watch their reading-habits, and note where the library's weaknesses lie. Unfortunately for him—and unlike the special librarian—he does not have what American broadcast advertisers have called 'a captive audience'. His audience, on the contrary, resembles successive flights of migrating birds, which descend upon him and deposit their troubles on his shoulders. Only a few of them can he ever hope to call by name. You will appreciate, then, that the subject-specialization and comparatively individual methods of service of the special librarian are hard to reconcile with conditions in a public technical library. In fact, a compromise has to be reached.

Subject Specialization and the User

In Sheffield, the Science & Technology Library is expected to cover the whole field of pure and applied science. This it does, in varying detail, through the provision of similar documentary material to that commonly found in special libraries (excepting, of course, confidential and/or unpublished internal reports and correspondence). However, the City of Sheffield's considerable preoccupation with the manufacture of the fine or alloy steels, and the fact that pre-eminence in the industry calls for intensive research, involves a heavy use of technical literature. This has been recognized by the Science & Technology Library, and specialization in the field of ferrous metallurgy has resulted in perhaps the most comprehensive collection on the subject of any similar library in the country. This has virtually the status of a special library, and around it a peculiarly personal quality in the service has grown up. Much of the credit for this must, of course, go to the influence of the Sheffield Interchange Organization, for which the library acts as enquiry bureau. Daily calls for technical publications quite naturally lead to requests for specific information, increasing the library's use, while public librarian, special librarian and information officer gain in mutual understanding and usefulness. (The Interchange Organization is fully described by J. P. LAMB in *Aslib Proceedings*, vol. 2, pp. 41-8.)

Sheffield's comprehensive treatment of the ferrous metallurgy class leaves the library still with a duty to make available a balanced stock in other subjects. This stock is selective: there would otherwise be formidable implications. Already the combined stocks of the Commercial Library and the Science & Technology Library (which are jointly administered) number over 31,000 items—42 per cent of the main General Reference Library and the Department of Local History together—and we exclude from this figure manufacturers' catalogues, German industry reports, O.E.E.C. exchange publications, and over 1½ millions of patents. Expenditure on books, periodicals and serials reached £1,491 in 1950-51—slightly more than the amount spent by the other two departments; while the staff of the Commercial and Science & Technology Libraries number eight compared with a total of ten in these other libraries. Use of the Science & Technology Library is increasing—often almost all the 108 seats are filled, and open-shelf space is always full. Obviously, the present balance of bookstock is proving adequate, and a general expansion, therefore, would be unjustified, as well as being calculated to absorb more than the library's fair share of the total public library income.

Information Service and the User

As the interests of users govern the subject-coverage of the Science & Technology Library, so also do they influence the character of the service given. In the first place, it is a reference library, because this enables us to assemble in one place for immediate use a collection of publications which gain in value from association with one another, and

J. R. SMITH : A PUBLIC TECHNICAL LIBRARY

render the maximum benefit to the seeker of information. Again, the physical form of many documents and periodicals—if they are to be preserved—makes them unsuitable for the hard wear and soiling which lending to the public involves. We therefore do not lend from this library except to members of the Interchange Organization. The reason for this exception is twofold : Interchange members undertake as a condition of membership to return books immediately on demand, and it is a matter of self-interest for them to do so. In addition, users of the Science & Technology Library have the great advantage of use of specialist libraries' stocks at the City Library, within an hour or two of their request. But loans to non-members of the Interchange Organization would bring no compensating advantage, and would not enable us to guarantee rapid return of material lent. (Lest, however, it should be thought that the City Libraries fail in their duty to borrowers, it should be remembered that there is an excellent selection of scientific and technical text-books available in the Central Lending Library.)

Who are the users of the Science & Technology Library, and how are they served ? Besides the members of the Interchange Organization, with their research workers and librarians who call upon the Library for literature and information, there are many other firms ; there are undergraduates and post-graduate workers ; experts and laymen ; work-people and hobbyists ; night-school lads and housewives—all claiming their share of the service. Some are regular clients, others we meet only occasionally ; but beyond these there is a great fluctuating mass of people—many not Sheffielders, nor even Britons—whose wants are incapable of prediction. Our method of service is, therefore, predominantly generalized : the field is too heterogeneous for the approach of the special librarian. We do not issue information bulletins, abstracts and translations, or contents lists ; neither do we circulate periodicals : instead, our clients come to us, and we give them the best tools we can contrive to assemble, with a fairly generous amount of individual help. We do not regard ourselves merely as a *library*—in the out-dated but persistent sense of an orderly collection of books. A good public reference library should be a well-documented information service, and I personally am in favour of the adoption of the additional title, which has long been deserved by several libraries I have known.

The information sources of the Science & Technology Library have their counterparts in the special library. Though we do not prepare abstracts, the premier abstracting journals are available, both general (*Engineering Index*, *Chemical Abstracts*, *Science Abstracts*, etc.) and special (*Metallurgical Abstracts*, *A.S.M. Review of Metals Literature*, *Iron and Steel Institute Journal*, etc.). To supplement these, we keep a card subject-index to significant articles in journals not abstracted, to which are added cards indexing unusual information in reference-works, directories, etc., and to troublesome enquiries, listing the sources of the information obtained. This combined index is kept for staff use near the enquiry desk. We do not prepare translations, but maintain an author index to technical translations held and loanable by Sheffield firms (now micro-

filmed for inclusion in the Aslib Index) ; while we also, of course, have the D.S.I.R. *Ten-Year Index*. Translated contents lists are represented by the D.S.I.R. *Translated Contents List of Russian Periodicals*, and those supplied by T.I.D.U. with the European scientific and technical publications we receive through the O.E.E.C. The library does produce research bibliographies (we have a series of sixty in stock) and occasional shorter reading lists, on demand for serious readers and research workers. The Research Bibliographies are duplicated, and have had a world-wide distribution ; reading lists are in single copies, typewritten. Besides our own Bibliographies, we have a file of those issued by the Science Museum Library, and the British Council *Scibib Series*—for which a special consolidated card subject-index is maintained. Other bibliographies, such as those of the Iron and Steel Institute, are indexed as books in the main library catalogue. In place of information bulletins, new additions are placed on show in an open illuminated display case, while subject-displays of material on current topics (e.g. Productivity) are set up.

The library catalogue is a prominent feature in the department, second only to the enquiry desk. Users are encouraged to make use of it as the key to the whole bookstock and files of periodicals. Only the working reference and text-books, current standard specifications and periodicals and abstracts are on view in the reading room ; the main body of literature is housed in the basement bookstacks. There are kept bound files of journals, series of bulletins (such as those of Illinois University), Government and United Nations reports, British and U.S. Patent Specifications, German industry reports, and O.E.E.C. European technical publications, with much other extensive source-material. Bookcases in the reading room are given subject-captions to aid readers, and the periodicals racks include a subject-index, while—most important of all—the enquiry desk is prominently indicated by a hanging showcard. Here, and at the telephones behind it, is centred the information service and bookstack-delivery counter. Strangers cannot miss it, and that depressing phenomenon in some libraries, the man or woman who hangs about looking helpless, has virtually disappeared. Credit for this must equally go to the staff who man the desk : they have inherited a long tradition of ready helpfulness.

To sum up, a comprehensive self-service installation is provided, but personal service is on hand the moment it is wanted. Self-service is naturally preferred by many readers who come to study rather than to seek specific information, and it is necessary to release staff to handle information enquiries. An average of thirty such enquiries a day are dealt with—from callers, on the telephone, or by letter—all involving actual searching in literature of one kind or another, and in addition there are many comparatively trivial queries which all take up time, as well as the time spent in book-delivery duties.

Staff and the Information Service

It is sometimes thought surprising that scientifically-unqualified chartered public librarians should have much success in handling the

J. R. SMITH : A PUBLIC TECHNICAL LIBRARY

wide range of, and often technically difficult, enquiries they receive. In Sheffield, we have some considerable headaches handed on to us by men who know their subject—as well as the other kind—and our record is not one to be ashamed of. We are not exceptional in our success, nor in the fact that not one of the Science & Technology Library's staff has scientific qualifications ; these things are the rule rather than the exception in other, similar libraries I know. How is it done ?

This question arises, in my view, from both an under-estimation of the value of training and qualifications in librarianship, and a misconception of the functions of the public technical librarian. Library Association qualifications, while certainly capable of improvement in their relevance to this special work, do require a thorough knowledge of library practice—classification, cataloguing and systematic procedure—which are essential to unlock a library's resources. They provide for qualification in knowledge of the literature and bibliography of the subject, and in the use of published indexes and abstracts, without which the librarian would be poorly equipped to serve the public. They further demand knowledge of administrative methods, and of the national library picture, so that one knows of the existence and activities of other libraries. These qualifications, together with experience in using them, and the necessary natural aptitudes, are behind the success of public technical librarians. Of the functions of these men, my opinion is that they should be alive to, and provide for the literature needs of users by class rather than individually. They should provide it as fully and efficiently as needs suggest and income allows. And they should have sufficient intelligent interest in the publications they handle, and know the indexes and abstracts to them well enough, to deal effectively with enquiries and facilitate use of the library by readers. The public technical librarian is not expected to read, abstract and publicize technical information : that is a job for the information officer or special librarian. Our task is to provide the literature, and offer information on demand.

When published sources of information are unavailing, at Sheffield we are fortunate in being allowed to seek the opinions of experts, through special librarians and information officers in the city, and I am proud to acknowledge the help they have given. They, in their turn, would, I know, not be backward in admitting that in some cases we have been successful in answering enquiries which had defeated their experts !

Book Selection

Within the wide field of pure and applied science, this is no easy matter, while the variety of users makes it still more difficult. As explained earlier, comprehensiveness is impracticable, and the staff's book-intake capacity is limited (additions number about 1,900 items a year). In making a selection, priority is given to known local interests, but a choice is also made from the best work in every subject-class of at least one item to begin with, adding material of suitable degrees of advancement as experience indicates. Wiener's *Cybernetics* is an example of the

one book which has sufficed so far, while the rapidly-expanding section on atomic physics is the direct opposite.

How is the selection made in Sheffield? Over a period of thirty years, experience has proved that demand in a subject-class should determine additions to it. In the case of ferrous metallurgy, practically all important literature in English, of all degrees of advancement, is acquired because of the local interest in the subject. In medicine, however, a limiting factor applies. The demand for this material is heavy, and comes chiefly from students at the University Medical School, because of the high cost of medical works and the limited number available in their own library. Were we to provide a representative collection for them, the initial cost would not be the only expense to be faced. Medical literature dates more rapidly and more expensively than almost any other, so that we have compromised by confining our stock, apart from Horder's *British Encyclopedia of Medical Practice* and the standard dictionaries, to the needs of the first- and second-year student. More than this we cannot afford.

To estimate demand, we rely first on experience with enquiries, and take note of gaps in the department's stock which may be revealed in dealing with them, as well as of requests for specific titles. Both these are recorded for use in book selection. Secondly, a check of use of individual books can be made, from the dates of issue entered on a label inside them. From the standard of advancement of such books, and their use, an estimate can be made of the need to strengthen their subject-class with fresh material, and if so, what standard is indicated. This issue-record has special value when a decision is to be made on whether to replace individual books with new editions. Whenever a new edition is not purchased, a typewritten slip is inserted in the old edition giving the reason.

Book-selection does not entirely depend on the results of these routines, of course. We do not hesitate to buy outstanding works in any field, finance permitting, when they are likely to have immediate interest or permanent value: Clapham, Tutin and Warburg's *Flora of the British Isles* and Degas's *Histoire de la Mécanique* were purchased on publication day. Throughout the whole sphere of book-selection, however, quality is keenly safeguarded. To this end, all periodicals containing reviews are regularly examined, likely purchases noted, and existing stock on the subject (if there is any) checked for use, and also for quantity—to discourage unbalance of subject-coverage. Apart from books bought on review, a number reach us from the booksellers on approval, and if there is any doubt as to their suitability, either reference is made to local specialists for an opinion, or purchase deferred for a review.

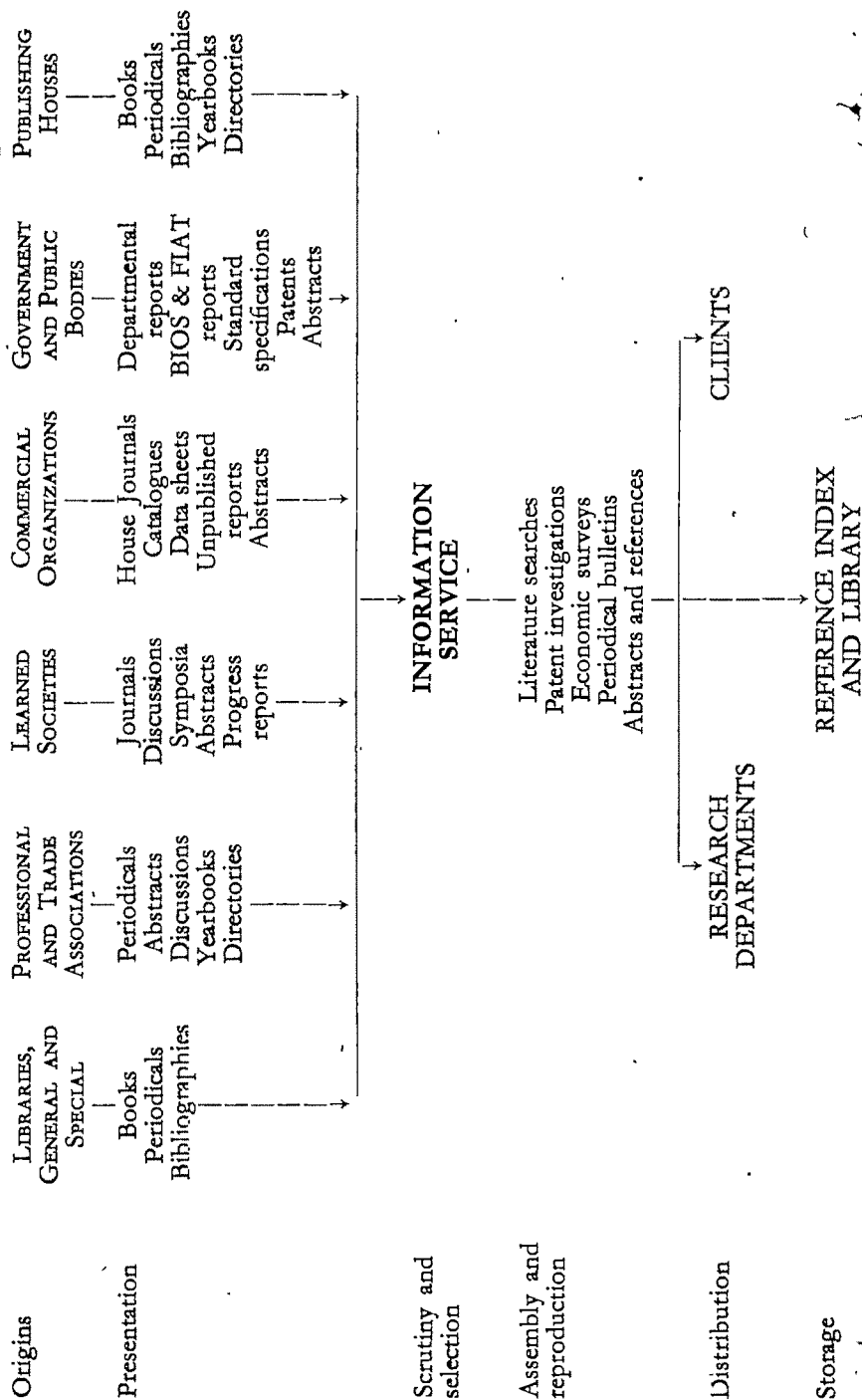
I should not leave this subject without mentioning the effect of the Interchange Organization upon book selection. The existence in my department of the Union Catalogue of books in members' libraries, does enable us to forgo purchase of an expensive or very specialized work already available within the membership, for which we feel the demand in the library will be limited. We have several times benefited

J. R. SMITH : A PUBLIC TECHNICAL LIBRARY

considerably from this facility, as have other members, who also check the Science & Technology Library's catalogue, particularly in connection with the large class of intermediate texts which special libraries do not usually buy, but which we can supply to meet their occasional need for them.

What little has been said in this paper about public technical library techniques has been incidental to its main purpose, which was to explain the circumstances governing the administration of the Sheffield Science & Technology Library in relation to those of special libraries generally. There is need for more detailed treatment of public commercial and technical libraries in the literature, to which this short essay could hardly contribute much. However, I shall be glad to answer any questions which interested members may wish to put to me in the discussion.

The Location and Handling of Technical Information



TECHNICAL INFORMATION SERVICES

By P. W. NASH, B.A.

Information Officer, Soudes Place Research Institute, Dorking

Sheffield, 27th March, 1952

FIRST let me say how privileged I feel at being asked to address an Aslib Conference on the subject of technical information services. Some months ago, the Soudes Place Research Institute prepared a report on this subject, and it was as a result of the publication of that report that I received your Chairman's invitation to give this paper.

I feel at this stage that I have nothing new to add to the fundamental principles discussed in the report, and I have therefore drawn liberally upon it for the substance of my paper. Certain applications of information work do, however, require special treatment. One of the main sources of interest in conferences of this nature is the opportunity they afford for comparing differences of circumstance and method. If, therefore, occasional mention is made of the methods used at Soudes Place, it is because in some respects the Institute is unique in this country, and presents the technical information officer with problems of an unusual kind.

The functions of a technical information service

The prime function of a technical information service is to lessen the gap between discovery and development. Any technological advance is essentially a two-stage process. First must come the laborious and patient experiments of laboratory and workshop; later, the results of these experiments appear in usable form. Unfortunately, the sequence is not continuous, and years may elapse between the first stage and the last, during which discoveries of great potential importance lie dormant or neglected. There are many examples of this: Fleming's original observations on the bactericidal action of penicillin were published in 1929, but it was not until ten years later that Florey and Chain began at Oxford their intensive research on penicillin as a bactericide. To take another case, the analytical technique of chromatography was first announced in 1861, yet it remained undeveloped for a quarter of a century thereafter. Again, the present vigorous exploitation of organic silicon compounds as high- and low-temperature lubricants, fluid heat-transfer media and water-repellent coatings is only five years old. Yet Kipping's monumental researches on these compounds began in 1901 and continued for forty-three years.

There are various reasons for these belated reactions to new knowledge. The knowledge may be difficult of access, as in the case of chromatography, where some of the most important early papers by Tswett were published in obscure German botanical journals. It may be in advance of the technical practice of the day so that the demand for it is still unborn,

as in the case of the silicon compounds. The tardy development of penicillin, however, is less easy to explain, as the need for an efficient systemic bactericide has always existed. Here, it seems, the stimulus of a war was needed to set practical development in train. The lesson to be drawn from this is that all who have to do with the scrutiny of scientific literature must continually ask themselves how many other and different "penicillins" capable of changing the face of an industry in ten years pass through their hands in the course of their work.

The handling of technical information

I have tried to illustrate the several stages in the location and handling of technical information by means of a printed diagram, some copies of which have been circulated amongst you this afternoon. With the 'raw material' of the Information Officer's trade—in the form of periodicals, text-books, directories, pamphlets, specifications, trade literature, abstracts and bibliographies—we are all familiar. As for the volume of this material, it is already formidable and is increasing. The 1934 edition of the *World list of scientific periodicals* contains over 36,000 titles, and the total is probably even higher to-day. A pamphlet issued recently by the Information Services Committee of the Royal Society lists 212 journals in Great Britain alone which are described as *British scientific publications reporting original work or critical reviews*, and this list does not claim to be exhaustive. Estimates vary as to the total number of technical and scientific papers, articles, books and patents published each year throughout the world, but it seems likely that the correct figure approaches one million.

Confronted by this mass of material, the information officer gets invaluable help from the work of the numerous abstracting agencies in different countries. But even so, taking in all branches of science and technology, the total number of abstracts prepared by all these agencies is in the region of 250,000 a year. These figures give some idea of the size of the haystack in which the technical information officer has to search for his needles. His first problem is, therefore, one of location.

The ability to track down information rapidly is very largely a matter of experience. Every information officer becomes, in the course of his work, increasingly familiar with the various sources that are open to him. Aslib itself, of course, is the principal clearing house for directing enquiries over an extraordinarily wide field of subjects. There are the libraries, public and special, throughout the country. There is the Intelligence Division of the Department of Scientific and Industrial Research (D.S.I.R.), primarily concerned with the technical and scientific spheres. There are the many well-known directories, year-books and guides. Commercial firms are often exceedingly generous with information that has not been generally published. Finally, no information officer can afford to neglect personal contacts. It happens time and again that the one detail required to complete an important survey comes to light in the course of casual conversation after every other source has failed.

NASH : TECHNICAL INFORMATION SERVICES

Hand-in-hand with the location of information goes the important task of selection. Here the job of the technical information officer is to miss nothing that is important, and to discard everything that is unimportant—and in view of what we know of the enormous volume of available information, the second of these functions is just as vital as the first ! The information officer will be guided in his selection by the particular interests of the organization he serves. At this point I may perhaps mention one of the special features of the Soudes Place Research Institute which directly affects this matter of selection. The Institute was set up shortly after the war as an independent consulting organization to undertake in its own laboratories and workshops industrial research and development for clients in as wide a field of industry as possible. Although largely staffed by specialists, its services as a whole are not specialized, and during the past few years it has handled projects connected with adhesive tapes, abrasives, automatic packaging machinery, carbon paper, cement and concrete, ceramics, dental fillings, detergents, fibre board, gas mantles, mineral oils, ferrous and non-ferrous metals, paints and pigments, plastics, synthetic organic chemicals and weed-killers. This very great breadth of interest makes proper selection a matter of the first importance, and to ensure it the information department works in the closest collaboration with both the director and the chief chemist. A project list is drawn up and is kept constantly up to date. All material is scrutinized in the library, and any article of possible importance is marked. A slip is then sent to the leader of the research team handling the project, quoting the reference of the article. He in turn visits the library, examines the article for himself, and then returns the slip after marking upon it whether the information merits recording or not, or, in the case of an abstract, whether or not a copy of the original should be obtained. This method prevents the indiscriminate recording of valueless information, renders elaborate systems of journal circulation unnecessary, and—most important of all—ensures that information is piped 'hot' directly to the scene of the work it refers to.

The next step is the assembly and reproduction of information for the user. This may be done in several familiar forms. Literature and patent searches, for example, are usually required at an early stage in many projects. Here again, the subjects of some of our recent literature searches—lead alloys, textile bleaching agents, insecticides, rubber latex, plywood, car polishes—reflect very well the range of subjects we may be required to cover. Patent searches are, of course, especially important when the development of a new product or process is being investigated. Information may also be presented in the form of abstracts, references, photostats or reprints. Many information departments put out periodical bulletins for their users, generally containing a classified collection of abstracts. Our own are more in the nature of monographs on the applications of various research techniques, such as chromatography, X-ray diffraction, mechanical prototyping or the use of radioactive isotopes. These, however, are on the borderline of publicity material, so I will say no more about them here.

The economic survey from a technical angle is another important function of a technical information department. A client who proposes to launch a new material or process on the market is obviously interested in a pre-view of the conditions he is likely to meet. What industrial applications are open to his product, and how much of it will they consume annually? Is the demand increasing or decreasing? What standards of purity do existing users stipulate? What is the current price of the product, and is it stable? These are typical questions in what may be called technical market research.

Finally, there is the task of classifying and storing information in such a way that it can be found again quickly and accurately. It is perhaps in this that practice differs most widely from one information department to another, and argument rages most fiercely. I do not propose to enter the lists for or against any particular system of classification, since obviously no one of them is suitable for every purpose, and each information officer must choose the system best adapted to his special needs. In my view, whatever the system used, simplicity should be the criterion. We must remember that the prime purpose of an information department is to serve users who are generally in a hurry and who are not themselves interested in, let alone familiar with, classification systems. A reference index might be a miracle of order and logical arrangement, but if the would-be user has to sit down and study an elaborate key before he can approach it, it is a bad index.

The qualifications of a Technical Information Officer

I now come to rather controversial ground, namely: the question of the attributes, temperamental and otherwise, that are required by a technical information officer. He must, of course, have a passion for order. In the matter of indexing, for example, subject to the proviso I made earlier about simplicity, it is better that he should maintain no index at all, rather than attempt to work a badly constructed one.

He should have wide interests and an enquiring mind, so that his concern with the technical and scientific problems of his organization becomes something more than a duty.

He should have a high degree of persistence. It so often happens that the references he is given are vague in the extreme, and the sources of particular information may be most obscure or even completely unknown at the outset. Only dogged detective work will find the answer, and even if it is negative, or there is, in fact, no information available, there is satisfaction in knowing that the ground has been properly covered.

He must be sociable. As I have said before, much valuable information can be gathered from personal contacts in spheres apparently remote from the immediate one.

He must be immune to disappointment, for research is a capricious master. A project which has entailed a fortnight's patient search through hundreds of reference cards and dozens of volume indexes may be suddenly abandoned in favour of some more promising line of approach.

As for the technical qualifications he requires, they, of course, depend

NASH : TECHNICAL INFORMATION SERVICES

upon the type of work his organization does. I am convinced, however, that the information department is no place for the man with specialized technical or scientific qualifications. Narrowness of outlook is fatal, and the more diverse the interests of his organization, the less desirable is it that the information officer should be a specialist in any one of them.

Conclusions

It has been said again and again by the most authoritative voices on both sides of the Atlantic that although Britain has no lack of scientific brilliance, she is deplorably slow in applying it to industrial production. This country's economic position lends special significance to such remarks at the present time, and it is indeed most essential that Britain should catch up with her competitors in the continuing race to develop new industrial techniques. Efficient and up-to-date technical information services are one of the most important and versatile aids in this process.

Official support for this point of view can be quoted from the recently published Report of the D.S.I.R. Committee on Chemical Engineering Research (H.M.S.O., 1951), which states on page 4 :

"From the replies received, we have been made aware of a very definite need for some form of technical information bureau. Many firms commented that existing research knowledge and data should be collected and published or should be readily available at some central reference point. . . . One of the tragedies of the present time undoubtedly is that so much of the information which exists, possibly in obscure and unrelated form, is unknown to potential users."

At the same time, our technical information services should be productive, not merely assimilative. They should not be content with the purely passive function of storing information, but should continually thrust it before the gaze of those whose responsibility it is to set the wheels of development in motion. Frequently the unasked-for presentation of the right information at the right time to the right person acts as a catalyst in transforming thought into action, and it is in this role that technical information services should be conceived and organized.

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ASLIB PROCEEDINGS

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MICRO-OPAQUES

By H. R. VERRY, F.I.B.P., A.R.P.S.

H.M. Treasury, Organization and Methods Division

London, 2nd April, 1952

I AM greatly honoured by this opportunity to discuss with you the subject of micro-opaques. Two years ago, at the request of Unesco, I made an extensive research into the possibility of all micro-techniques. An outline of these visits and the conclusions I reached have been written in two reports supplied to Unesco for general distribution.¹

My views are those of a technician and not a librarian. The most effective approach to the study of this nature would have been to combine the opinions of both a technician and a librarian, but unfortunately that was not possible and few of us can be experts in both fields. It should, however, be stressed that, taking all things into consideration, the chief problem facing all microfilm techniques to-day is a technical one. Much time, energy and temper have been wasted in discussing the ideal medium, but no microfilm technique can be of any value or serve the purposes it is designed to serve unless it is acceptable to the user.

The criterion of the success of any method is the appeal it makes to those who by choice or necessity are compelled to use that medium.

One of the most important facts discovered on my visits abroad was that each country had developed its own techniques and apparatus quite independently and generally without any knowledge of the work being undertaken in other countries. In every country I visited I was subjected to a considerable amount of talk, chiefly sales talk. Everywhere technicians and salesmen were anxious to tell me what they had developed, how important was that development, and how much better it was than any other. There was never any attempt to find out whether it was really suitable for the user.

Nowhere on the Continent was there to be found any apparatus for reading microcards or Microprints. All countries were prepared to discuss their supposed faults, but nowhere at any time had micro-opaques been seen through a reader and therefore none, in my opinion, was able to discuss intelligently their merits or otherwise.

At the end of my journeys I concluded that in microfilm there is nothing so urgent or so necessary as the acceptance of some standard both in type and size so that microfilm technicians and mechanics in all

¹ UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION Microphotography ; report of an enquiry concerning microphotography in countries other than the United States of America , assignment conducted by H. R. Verry . . . [n.p. Unesco], 1951, ii, 53 pp mimeographed, and Microphotography, part II ; report of an enquiry concerning methods and equipment for microphotography in the United States of America ; assignment conducted by H. R. Verry . . . [n.p. Unesco], 1951, ii, 23 pp., tables, mimeographed.

countries may concentrate their skill and ingenuity in the development of the ideal medium instead of dissipating their energy on techniques which only add to the confusion and not the advancement of microfilm in some acceptable form.

In my final report I recommended the acceptance of micro-opaques as the most satisfactory medium, particularly for those techniques which are to be used by the general public. The decision was based not only on the observations I made throughout the countries I visited, but by countless enquiries and tests over long periods with people who were potential users of the microfilm medium.

In the numerous tests we have undertaken, micro-opaques have made far greater psychological appeal to the user than microfilm in any other form. There has never been any hesitation in selecting the opaque medium. That I consider is the final assessment of its worth. Any technique, no matter how theoretically ideal it may appear to the technician, librarian or theorist generally, if it does not meet the requirement of those who use it, is only adding to the numerous problems already existing in microfilm and contributing nothing to the acceptance of a satisfactory medium.

Having stated that micro-opaques are a satisfactory medium for use by the public I should hasten to add that they cannot be considered ideal for all requirements. For some uses film in roll form is more suitable than cards. The widespread employment of 16 mm. film in banks and counting houses is meeting most exacting requirements. Film used for security purposes, for archives and many of the well-known techniques is probably far better in roll form. At the present time it is considerably cheaper to produce and also to reproduce. Should the originals meet with disaster there are machines able to accommodate the long rolls and automatically, at great speeds, produce duplicate copies on paper. Such facilities are not yet available for sheet film, negatives and cards.

I am, however, convinced that where the public are expected to use some form of microphotography, micro-opaques constitute a more acceptable medium than microfilm in any other form.

It should, however, be emphasized that micro-opaques in their present form are not yet entirely satisfactory. The quality leaves much to be desired and frequently reductions are too great, resulting in lines of poor definition. When I ventured these criticisms verbally to Kodak's, at Rochester, N.Y., I was informed by Kuipers of the Colour Control Division that although they had made the preliminary experiments on microcard no one was more conscious of their defects than they were. He did, however, express the view that if some decision could be made by documentalists regarding the standardization of micro-opaques which would lead to more widespread use of them, the technical research departments attached to each large photographic house would be willing to undertake, at their own expense, the necessary research which he felt convinced would eventually produce microcards which were acceptable to all.

It is for this reason that I believe in the possibility of microcards.

VERRY : MICRO-OPAQUES

There is nothing perfect in the world and no micro technique can ever be completely without fault. If every minor weakness in any technique is to be used as a hindrance to our acceptance of that process, then no form of microfilm can ever be really acceptable.

As most of you are familiar with all the microfilm techniques, I do not propose to discuss them in detail. You are all aware that the main difference in the two types of opaque cards is in their size and method of production. The size of the microcard is 7.5 by 12.5 cm. or approximately 3 by 5 inches, and the Microprint is 6 by 9 inches. The microcard can contain any number of reductions according to the quality of the original. The Microprint is supposed always to contain one hundred pages.

The microcard is produced photographically. It is a photographically sensitized card printed by contact from the original film. The Microprint is produced by lithographic methods and consists, therefore, of printer's ink and card. It can be produced in quantities very cheaply. In theory, therefore, one is designed for short runs and the other for mass production. Mr. Boni, the inventor of the Microprint, states that normally he requires at least one hundred copies to make the method economical. If possible, he prefers longer runs which would reduce the cost considerably.

Theoretically, the two opaque mediums meet entirely different requirements. The Microprint may be classed as a form of publication and the microcard is designed to meet small demands. The Microcard Foundation have also claimed microcards as a means of publication, but in their present form they cannot compare in production costs for quantities with the Microprint. The initial cost of lithographic print is extremely high, but subsequent reproduction in quantities is very cheap. Boni claims that the cost of Microprint is a half to a quarter that of roll film and a quarter to a fifteenth the present cost of microcard. The British Parliamentary Papers, consisting of four million pages of text, were reproduced by Microprint for \$5,000, or eight hundred pages for a dollar. This cheap reproduction makes Microprint ideal for mass distribution.

It is also claimed for Microprint, that being non-photographic and on rag-based card, that it is quite permanent and will lie flat without curling. Against these advantages is the necessity to use 35 mm. negatives, since the litho method of reproduction requires a larger image to avoid spread by the printing ink in the offset machine. It is claimed by microcard enthusiasts that the photographic image can produce much finer definition at higher reduction ratios and, therefore, the actual number of images that it is possible to reproduce photographically on the 3 x 5 inch card is equivalent to that produced by offset litho on the 6 x 9 inch card.

It is difficult to estimate the cost of microcards, since they are at present made from roll film and the rate of exchange gives no real indication of actual costs in this country. I have prepared a rough estimate of the price in this country based on the price of sheet film, 3½ x 5½ inches, and photographic cards. For short runs, even by hand printing, one should be able to make the negative in one hour and print at least twenty-five

cards in a further hour. The material cost is film 1s., cards 2s., so that allowing for labour, production costs should be approximately 1s. per card, each of which may contain fifty reductions. For larger quantities there exist machines designed for making picture view cards. These have an output of 1,500 cards per hour with material costs of only 1d. per card.

Many of you have written me most helpful and informative letters on the question of the most suitable size. Generally you appear to prefer the larger-sized card. You feel that publication of old books and manuscripts is the particular need of librarians to-day and that the fact that Microprint is being supplied already in cases like books appears to make it far more appropriate for use in libraries.

There are strong arguments which can be developed for both sizes, but on balance I conclude that the microcard is preferable.

My reasons can be briefly stated :

- (1) I have selected a smaller card because there is the machinery available to develop it and because its widespread use in U.S.A. will require apparatus in every country for viewing those cards.
- (2) The Microprint occupies considerably more space since the requirements for offset litho are more exacting than for photography. Further, the promise of tremendous development in providing film and card capable of extreme reductions may eventually give us the number of reductions we require on the 3×5 card.

In a report by the Dutch firm of Philips dealing with the development of special film and card for obtaining higher resolution Dippel¹ stated that the experiment indicated that enormous improvement can be made. He quotes as an indication the resolving power of microfilm which is 160 lines per millimetre, whereas the experimental film was 1,000 lines per millimetre. He also states that by simple external treatment the characteristic tone of the emulsion can be so altered that half-tones can be produced with fidelity side by side with the hard contrasting picture of a line diagram, and by simple treatment even the fibrous nature of paper and card can be made to render extremely fine definition.

It is quite reasonable to suppose that with the continued development the microcard could easily be made to accommodate at least 100 pages. There are many scientists who will regard this as a most conservative statement, particularly in view of the 'dot' system used in espionage during the war. Rider himself counts upon being able to accommodate up to 250 pages on a single card,² but I feel it is better to be conservative than otherwise !

- (3) There are excellent cameras already designed to make sheet film 3×5 but not 6×9 inches. If we are to wait until other countries have developed the cameras to accommodate the large size sheets,

¹ P. M. VAN ALPHEN and C. J. DIPPEL, New technical possibilities in the micro-reproduction and multiplication of documents. *Rapports de la 17^{me} Conférence de la Fédération Internationale de Documentation, Berne, 1947*. 1947, vol. 1, pp. 75-8.

² FREMONT, RIDER, *The scholar and the future of the research library*. New York, Hadham Press, 1944.

VERRY : MICRO-OPAQUES

then I consider it will be many years before we can make any progress on micro-opaques in this country.

- (4) We have available automatic printing machines which could produce microcards at great speeds cheaply.
- (5) As yet we are not able to undertake offset printing of such minute reductions as are required for Microprint. It should also be remembered that Mr. Boni is the only one who can undertake this work in the United States. It will need considerable research in this country before we have mastered the secret of this method.
- (6) Cabinets are available for the 3×5 cards.
- (7) Reading apparatus for the 3×5 cards has been greatly improved and should improve considerably more through further development by designers in every country.
- (8) A greater proportion of microcards than of Microprint is being sent to this country and we shall be expected to return microcards of our own scientific and other material in return for those being issued from the United States. We cannot reasonably expect to keep on receiving without giving something in exchange.

At a later period there may be room for both microcards and Microprints and even for some intermediate sizes of the Cordonnier type, but the microcard alone offers us the only opportunity for immediate development and production of both the card and the apparatus. I do, however, consider it desirable that whilst we are developing the microcard reader we should design it to accommodate the Microprint. We can then have the best of both worlds, in fact, all the worlds in micro-opaques.

This brings me to the stage where I should like to discuss what developments are taking place in England. For a long time we have been in a vicious circle where, although we have had the cards, we have had nothing to read them with and the microcard is of little value without a reader. As I have already stated, our manufacturers are interested, but they are not prepared to spend money without some reasonable assurance of a wider acceptance of the micro-opaques. There have been a few requests for publication of microcards in this country, but as yet there is no one with the necessary knowledge or equipment to produce them. I have been greatly encouraged to know that at least two London companies are interested in both the production and the publication of microcards.

We in the Government have ordered a camera from Holland for making microsheets, together with the printing equipment for making microcards. When this arrives we propose to experiment and hope to produce 3×5 inch microcards.

We are giving serious consideration to replacing certain documents by microcards, generally to conserve space where documents are infrequently used. The Patent Office is an instance where lack of space is really serious in the foreign patents section. These specifications are only infrequently used and since it is now possible to purchase microcards of

these specifications direct from America, we have a practical opportunity to test the public reaction to this medium.

The distribution of microcards by the scientific organizations in the U.S.A. has induced a number of departments to request readers for use with these cards and many are now equipped for that purpose.

Many of the larger libraries I visited abroad stated that they did not yet make an extended use of the microcards because nothing had been issued on cards which they did not possess in its original form. It does now appear that the widespread publication of these cards will make it essential for all libraries dealing with scientific literature to be equipped for reading the microcard.

In one of his many articles Dr. van der Wolk¹ has made a plea for the use of microcards in scientific and research libraries to prevent the long and serious delay necessitated by the numerous requests for scientific books. I could paraphrase a well-known saying by adding 'never have so many waited so long for so few'. Dr. van der Wolk feels that the issue of cards would obviate these long and tedious waits which can be so serious in scientific research. The experiments by the Library of Congress Naval Research Section in Washington have proved him to be right in his theory.

We in this country have been extremely interested in the experiments undertaken by the Naval Research Section and some of the confidential papers we have had on their reactions indicate just how acceptable microcards can be.

In January, 1951, the Naval Research Section participated with the Office of Naval Research, Washington, in an experimental use of microcards. In co-operation with the Microcard Foundation it arranged to supply microcards and a reasonable-priced reader on a rental basis. These cards differ from the normal type in that they are laminated to the back of a Technical Information Pilot catalogue card, thus giving the user, on a 3 x 5 card, a complete abstract in ordinary print and the document itself in microcard form.

The experiment was set to cover a period of six months. In that period 400 reports were microcarded and supplied to about 125 people; at the end of the experiment a document was circulated to obtain the user reaction to the scheme. It was concluded that the result was 100 per cent. favourable and many of the recipients were extremely enthusiastic about the scheme. These reactions came from people in all spheres of life, including librarians, engineers and scientists.

A second group of recipients was later added to the scheme, consisting of individuals who were seeking the loan of documents which could not be made quickly available because of the numerous requests for the same documents. Microcards were issued for use during the waiting period and three out of every four expressed their satisfaction with the card. The minority who still required the document expressed no opposition to the card, but stated they had not the facilities for reading them.

¹ L. J. v. D. WOLK and J. C. TONNON, The microcopy on flat film, as an aid to documentation. *Review of Documentation*, vol. 17, no. 5, September, 1950, pp. 134-41.

VERRY : MICRO-OPAQUES

In an analysis of their reactions towards microcards 77 per cent. of the scientists and engineers stated that they were very favourable and 73 per cent. of the librarians said the same. Mildly favourable were, engineers 22 per cent., librarians 23 per cent. ; indifferent, engineers and scientists 1 per cent., librarians 4 per cent. No one, neither scientist, librarian nor technician, stated that they disliked microcards.

It is now time for me to finalize my thoughts. My reason for consenting to discuss this problem of micro-opaques is that I believe they are, on the whole, the most satisfactory form of micro technique.

Further, as a technician, I am aware of the tremendous technical possibilities which can be effected by widespread adoption of them. Micro techniques have in the past suffered because no universal acceptance of one particular technique has been made and much time and energy have been dissipated by fruitless effort and argument in an attempt to prove that every individual size and method was the best.

It has been my privilege to see and to study all the methods, and I have concluded that for most uses opaques are to be preferred.

I selected the smaller size because we have the machinery to develop it and because its widespread publication and distribution from America makes it essential that we should use the same standards. Further, the promise of tremendous development in providing film and card capable of extreme reduction may eventually give us a 3×5 card with as many reductions as is desirable.

Dr. Kuipers, of Kodak (Rochester, N.Y.), summed up his views on microcard by saying 'the micro-card concept will stand until it is sure that the requirements of the concept cannot be attained or that in some other manner more document users can receive more document material in a more useful form at the cost which the user can afford'.

The most urgent requirement in this country is the adoption of some standard. If micro techniques are to play their vital part in the national life, we must cease our search for the ideal and accept those techniques which offer an opportunity for us to develop, if not to perfection, at least to a really acceptable medium.

To this end I believe we should form in this country a Microcard Committee and examine the problem and all its possibilities.

The development of microcard must remain stagnant until we are willing to indicate to the manufacturers what type of equipment we require. At this stage we can learn much from the experience of our American friends. Already microcard has given indications of promising possibilities and a concentrated effort directed to the quality of the cards, the camera and the reading apparatus will yield dividends beyond our wildest hopes.

As a technician my ambition is to provide a really acceptable medium which is satisfactory to both user and librarian. As documentalists your problem now is to say whether you require micro techniques and, if so, in what form you require them. Together we can make concerted efforts to achieve our goal.

At the present time, with manufacturing and other difficulties, the task will not be easy, but if we can reach agreement we will at least have sown the seed which in due course will bring forth its reward and a rich harvest.

The Chair for the meeting was taken by Mr. L. R. POOLE (Department of Scientific and Industrial Research). Following the paper, the discussion was opened by Mr. G. WILLIAMS (J.I.B., Ministry of Defence), who said that the flexibility of a microcard depended upon the degree of reduction; frame size varied. With a large publication only a few pages would be reproduced. Was there a paper to print from film with a high resolution? He also preferred roll film to sheets.

Mr. VERRY said the card was satisfactory in America. He was all in favour of roll film for producing microfilm sheets. The Cordonnier apparatus indicated the way. If microcard opaque was accepted as the standard form other apparatus would be developed rapidly.

Mr. A. H. HOLLOWAY (Ministry of Supply/T.I.B.) said that while he appreciated Mr. Verry's reasons for advocating the use of opaques rather than transparencies, the Episcopo was a more complicated apparatus and more expensive; the cheapest American microcard reader was \$198, but there was available a reader for transparencies costing only £25. He doubted whether any readers for opaques were on the market in this country. Users here would have ideas on the kind of apparatus they required.

Mr. VERRY said that there was a microcard reader available at \$125¹; the cost was all a matter of production. If agreement could be reached on one size, bulk production would lower the price. Sheet film cost 1s., a card cost 1d. It would be worth a little extra cost to purchase a reader for the more cheaply produced cards.

Mr. K. SHAW (British Scientific Instruments Research Association) said that he had not much experience of microcard opaques, but was accustomed to using microfilm, and found that the users frequently asked for a print of particular frames; for example those including diagrams or tables. He wondered if there was any prospect of enlarging from opaques in order to produce copies of diagrams for the users' retention.

Mr. VERRY said if opaques were imported from America it might be difficult, but if they were produced here the microsheet master could be used for making an enlargement.

Mr. SHAW said he wanted to have the copy made from the micro reproduction in his possession and not to have to get in touch with the publishers.

Mr. VERRY replied that the search for perfection would go on for ever, but we should have to accept some imperfections whatever form was used.

Mr. WILLIAMS suggested that a facsimile could be produced by projection from opaque.

Mr. VERRY replied that this image was not so good, and asked Dr. Schultze's opinion on the matter.

Dr. SCHULTZE (Kodak) said he had experimented with reproduction from a projected image and found no difficulty in producing enlargements, although it was better, as Mr. Verry had said, to produce them from microfilm sheets.

Mr. EUGENE B. POWER (University Microfilms) said that he possibly had a prejudiced point of view, but he spoke as one of the people with whom Mr. Verry had had considerable discussion. In America much argument on the subject had been carried on and he thought that there was danger in attempting to standardize. Here the discussion was on standardization of one technique and one size, but in the natural development all techniques should have their place. As Binkley had said, every process

¹ British would-be purchasers should take into account that in addition to a 50 per cent. *ad valorem* U.K. import duty, allowance must be made for the cost of freightage and the fact that the apparatus operates at 115 volts electric current, i.e. a transformer would generally be necessary for use in Great Britain. There is, however, the prospect that the American reader will be manufactured in this country and will accommodate lamps of normal voltage.

VERRY : MICRO-OPAQUES

has its criteria which indicated its use. There was a place for the roll film and possibilities in its convenience of use, but there was also the increased cost of production with this method. Microcards were also costly to produce. One Dutch camera could make both of these and cards.

In America the production and distribution of materials on 35 mm. film was cheaper than any microcard. Microcards were useful when only a few pages were to be reproduced. The type used in the O.N.R. project was a good example. This had an abstract in readable type on the back. If a library wanted to collect material for permanent storage, the roll film was the most economical and convenient. Laboratories throughout the world used microfilm and were equipped for it. Even in this country there was a substantial quantity of microfilm apparatus. Librarians were inclined to think that the 3 X 5 size was made in heaven.

He was under the impression that Microprint was a patented process and could not be used by others. It was only suitable for producing 50 to 100 or more copies.

He did not think that microcards gave a good image on the screen, and a good image was most important. Nobody liked reading from an image on a screen except when it was absolutely necessary, and the users would prefer the best image and the one producing least eye-strain.

He had seen a useful method of keeping strips of film, i.e. by placing them in acetate jackets; in this way the specialist could make his own collection of the articles he required on microfilm.

MR. VERRY welcomed Mr. Eugene Power, but he felt that Mr. Power's remarks showed that he himself had failed to put his arguments clearly. He had meant to stress that roll film was more suitable in many instances and that microcards as they now existed were not completely satisfactory. He hoped that if microcards could be accepted their development would go ahead, later there might be requirements for Microprint and other sizes, but if we waited for perfection nothing would ever be done. There was no camera to produce a negative other than a 3 X 5, and since this apparatus was available it was, therefore, reasonable to start with it. As far as patent protection went, there was no patent to offset litho, the only patented invention was the 10 X 10 arrangement on the Microprint.

MR. POOLE said that it had been suggested that it would be valuable to form a British microcard committee. He would like to see by a show of hands whether the idea was generally approved, and he asked the librarians to vote. There were no dissensions.

MRS. L. MOHOLY said she was grateful to Mr. Verry for suggesting that we should try to start the development of micro-opaques in this country, but she felt we should contemplate things in order. There was no research body for microfilms similar to the one proposed for microcards by Mr. Verry. She would like to suggest that the Committee should be set up to study the various methods more closely and explore what each method could do. The first task of the Committee might be to investigate microcards, but the scope of the Committee should cover micro reproduction in general.

MR. WILSON (Director of Aslib) said that he personally would support Mrs. Moholy, and in Aslib the wider purpose of the Committee would be more acceptable than the original, since a similar suggestion had been put up to the appropriate Aslib Committee about nine months ago, but was unenthusiastically received. He would like to see a small research body set up to go into the pros and cons of the appropriateness of each process.

MR. N. K. HARRISON (St. Bartholomew's Hospital, Department of Medical Photography) asked whether Mr. Verry had discovered any hospitals using opaque techniques?

MR. EUGENE POWER said there had been considerable use of 16 mm. film for case histories. The film had been cut up and put into acetate jackets together with X-rays.

MR. HARRISON said that he agreed that there was much to be said for setting up the Committee on micro techniques, as a whole rather than on micro-opaques only. The archives in a hospital took up an enormous space, but few hospitals in Great Britain were able to keep their case papers indefinitely. Most of them imposed a time limit on storage, but they could have the records transferred to 35 mm. film. The progress in

modern emulsions was such that 16 mm. film could be used. He would like to support the suggested Committee on micro-techniques.

MR. VERRY said that microfilm had been made for hospitals and also 10 × 12 X-rays had been reproduced on to 35 mm. film. The Nursing Association's records had been put on to microfilm. For most of this work 35 mm. seemed to be the best size.

MR. J. MITCHELL (Ilford, Ltd.) said he supported the last speaker and felt that we must retain flexibility in our techniques. Mr. Verry had made it clear that there was a field for microcard, but unless this was demonstrated to the manufacturers they would not take an interest. A manufacturer must know that the idea was worth exploiting. Mr. Mitchell felt there was room both for the opaque and transparency. Emulsions of high resolving power on transparent or opaque base were available, but it was much easier to make a positive on a transparent base and retain good definition. The cost of equipment must be considered too; the Dutch equipment cost about £1,000. Mr. Mitchell asked if there was a need for a central processing service to produce either opaques or films?

MR. POOLE said there was a definite feeling in the meeting that the work of the proposed Committee should not be confined to microcards, but should cover micro reproduction techniques in general, and he would like to leave it in Mr. Wilson's hands to bring it before the appropriate Committee with this meeting's support. It was clear that to standardize down to one method and one size would not be possible, but if manufacturers could be told what really was needed, he was sure the right equipment would be devised. A great deal of ground had already been covered and there was much literature on the subject; for example, a bibliography published by the Library of Congress contained 263 references to microfilm and microcard. If a research committee could now be formed it should be possible to get down to work straight away.

MEMBERS' FORUM

FRENCH OFFICIAL DOCUMENTS

BY BARBARA KYLE

Librarian, Royal Institute of International Affairs

TO counter, in some measure, the scepticism with which international conferences are usually viewed, I should like to give a short account of a project brought to a successful conclusion as a direct result of conference activity.

In January, 1951, the Carnegie Endowment (European Centre) and the Fondation Nationale des Sciences Politiques convened a two-day study conference on problems connected with two sources of documentation for students of international relations: official documents and press-cuttings. The discussion and papers presented on the first day, dealing with official publications, has now been published as a pamphlet, *Les publications officielles et la documentation internationale*.¹ This is itself a useful bibliographic tool for librarians.

During the course of the discussion it became clear that few governments adequately listed their publications and that all over the world librarians and students were consuming a great deal of time tracing and selecting government documents. It was felt that any attempts at centralizing this work would be profitable and might demonstrate to governments the need for better listing. Arising out of this situation a small experiment was started in January, 1951. I promised to send to the Fondation Nationale des Sciences Politiques a weekly list of all British Government publications selected for the library of the Royal Institute of International Affairs. In exchange I was promised a similar list of French Government publications. This latter list involved much the most work because of the difficulty of tracing the French publications, and my offer was only a sprat to catch a mackerel.

In April, 1951, the Co-ordinating Committee of Documentation in the Social Sciences agreed to support this work and the first list of French documents appeared in mimeographed form, with the Committee's imprint, as *France: Documents administratifs. Liste no. 1: 15 mai, 1951*. This was shortly followed by *Liste no. 2 (Liste récapitulative): Janvier-Mai 1951*. This second issue carried a significant footnote to the effect that its production was the work of collaboration between the Bibliothèque Nationale, the Fondation Nationale des Sciences Politiques, the Ministère des Affaires Etrangères, the Préfecture de la Seine, and the Présidence du Conseil. Thereafter these lists appeared fortnightly throughout 1951.

¹ Available from the Centre Européen de la Donation Carnegie, 173 Boulevard Saint-Germain, Paris 6e.

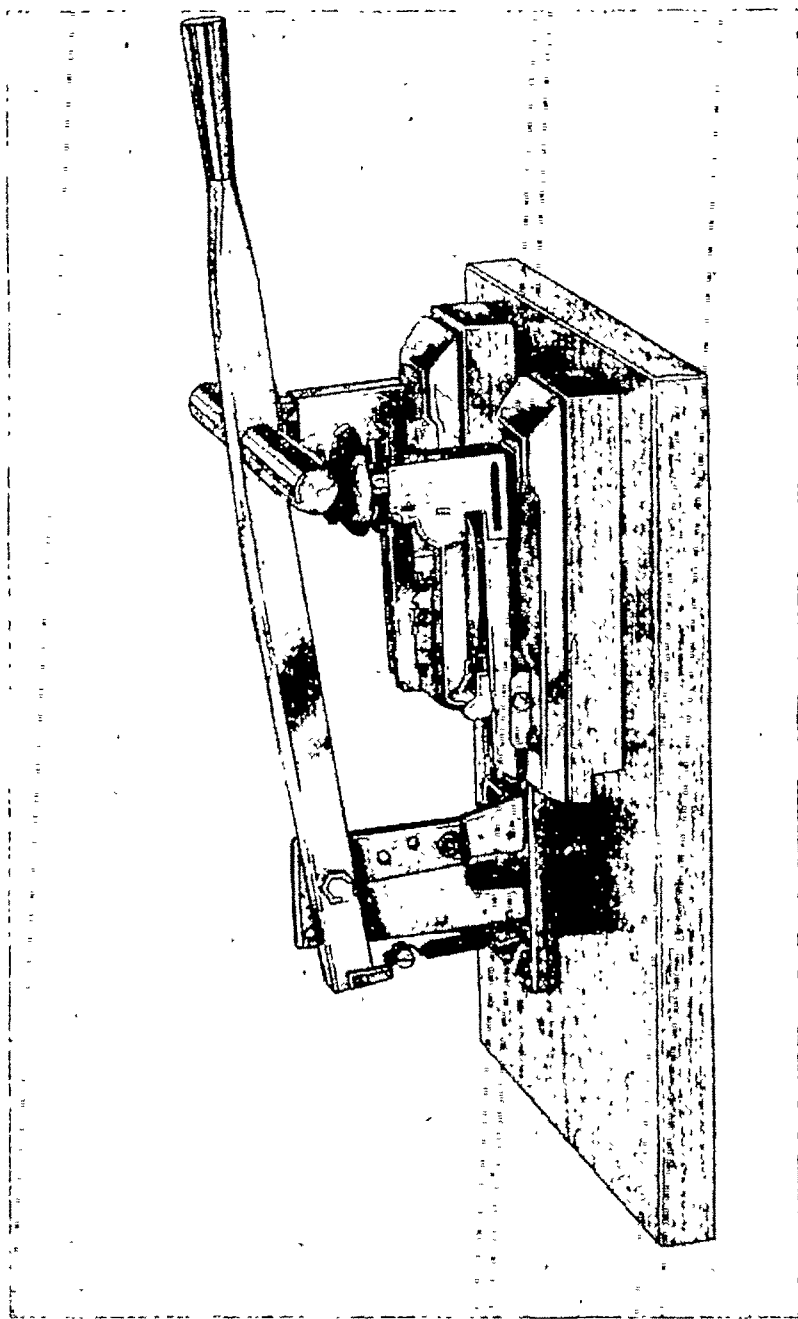
In January, 1952, there appeared the first issue of a new publication, under the double imprint of the Co-ordinating Committee and of the Commission interministérielle de documentation et diffusion, and as part of *La Documentation Française*, entitled *Bibliographie sélective des publications officielles françaises*. The introductory paragraph is worth abstracting.

The publication and printing of French official documents is so decentralized that a periodical catalogue such as exists for United States and United Kingdom publications is impossible. Since 1950 the Bibliothèque Nationale has listed as 'supplément F' to the *Bibliographie de la France* all these non-periodical official documents that came to them by legal deposit. The present bibliography is an attempt to complete this work. It lists texts and documents appearing both in periodicals and as individual publications. It will appear fortnightly in two parts. The first part takes the place of the mimeographed list of 'documents administratifs'; the second part replaces the monthly list of articles from official periodicals which has been distributed since 1949 by the Présidence du Conseil.¹

The Carnegie Endowment in Paris may congratulate themselves on having planted a productive acorn, and the French Government on having set an example which it is hoped others will soon follow. However, as so often happens, the solution of one problem has illuminated another. While it is now possible to trace the existence of most important French official documents, it is very difficult to purchase them. The original reason for the difficulty in establishing their existence was largely created because there is no central publishing office for French Government publications. It follows that there is no central place of distribution. Perhaps the next step might be a conference of French librarians and government officials who between them might solve the problem.

¹ This publication will be sent free for a trial period; the subscription is 1,500 francs a year; the address to which orders should be sent is 16 rue Lord-Byron, Paris 8e.

FOSKETT: STITCHING OF BULLETINS



M.B. dual stapler.

STITCHING OF BULLETINS

By D. J. FOSKETT, B.A., F.L.A.

Information Officer, The Metal Box Company, Ltd.

A NUMBER of information services produce bulletins of abstracts and similar material by typing a stencil and stitching the sheets together with an ordinary office stapling machine. This is a tedious, fatiguing and time-consuming operation, but if badly done can ruin the appearance of a duplicated document. Enquiries among a number of bulletin producers and makers of wire stitching machines showed that no attempt has apparently been made to devise an easier and quicker method, and a small gadget was therefore constructed. This has been in use in the Metal Box Research Division for some months, and is greatly appreciated by the typist. Several visitors have commented approvingly on it, and a short description may be of wider interest.

Two office stapling machines are mounted on blocks at the front of a wooden base about 15 × 9 inches. Behind them is a bracket on to which is screwed a small flat metal bar, at the side of the bracket next to the staplers. On a screw fixed into the top of this small bar there is pivoted another bar, 16 inches long, extending from the back of the bracket to about 6 inches in front of the staplers. The rear end of this bar is attached by a spring to the base of the bracket. A third bar is attached at right-angles to the second in a position to bring it over the bosses of the staplers.

The long bar thus acts as a lever to bring its 'cross-bar down on to the staplers, so driving in two stitches at once with a great deal less effort than is needed to operate the same staplers by hand. The spring ensures that the weight of the lever does not keep the staplers permanently in the depressed position.

A further refinement would be to mount one of the staplers on a small ramp so that it could be moved across the board, thus making the distance between the two stitches variable.

The cost was about £2, including the staplers and the time spent by the workshop apprentice who put it together.

THE WORK OF ASLIB

THE following report of Council for the year ended 31 December, 1951, was presented at the Annual General Meeting on 23 April, 1952, held at Friends' House, Euston Road, London, N.W.1. The Chairman was Mr. G. Woledge.¹

Contents

- Section A — Introduction.*
- Section B — Finance.*
- Section C — Membership.*
- Section D — Conferences and Meetings.*
- Section E — Education.*
- Section F — Information Service and Library.*
- Section G — International Relations.*
- Section H — Publications.*
- Section I — Midlands Branch.*
- Section J — Northern Branch.*
- Section K — Scottish Branch.*
- Section L — Special Groups.*
- Section M — Staff.*
- Section N — Relations with other Organizations.*

Section A—Introduction

In 1950, the Council was able to report the completion of the move into new premises, the fulfilment of a large measure of internal reorganization and a modest start on a programme of expansion. This report shows how far that programme of expansion was carried in 1951. It is an encouraging picture: the conversion of a long-established bank overdraft into a substantial credit balance; a bigger growth in membership than it seemed reasonable to hope for a year ago and, with it, a financial surplus on the year's accounts of £1,485, which should enable Aslib to go forward with greater confidence; an increase of 20 per cent in members wishing to attend the annual conference; the beginning of an index of unpublished translations; the establishment of a new consultant service, and an increase of one-third in the routine enquiry work of the Information Bureau and Library; the shouldering of important international responsibilities on behalf of Great Britain in the bibliographical field; work on a growing number of major publications; the formation of a new branch in the Midlands; the creation of the first four special groups; and an increase in the office staff from 15 to 20, a number which is still barely adequate for immediate needs. Gratifying though this record is, there is no room for complacency. Further expansion is needed, and some financial reserves must be built up even while Aslib's

¹ The report, together with lists of officers and staff, and the Balance Sheet and Accounts for the year, was circulated to all members of Aslib before the meeting.

total income is comparatively small. These will be matters of the greatest moment for 1952.

Section B—Finance

From the financial viewpoint, the year began on a sombre note. In 1950, it was only with great difficulty that the grant-earning income had been brought up to the figure of £4,000 which the Association had undertaken to raise as a condition of the Government grant; and until the results of the new membership campaign could be assessed, the possibility of reaching the minimum figure of £5,000 laid down for 1951 was uncertain. In those circumstances, the Council felt obliged to seek permission to earn grant on the same scale as in 1950, although this automatically imposed a maximum of £5,000. This was given. However, the campaign was prosecuted to such good effect that British subscriptions in fact reached £5,337. It has since transpired that certain subscriptions, on which grant had previously been paid, were not eligible and the figure for grant earned in the general income and expenditure account has accordingly been restricted to £4,800. Some repayment in respect of previous years may later be required.

It can be seen from the Balance Sheet that some substantial items of expenditure represent an investment in stock. For example, furniture and equipment have been bought at a cost of £929 and, in view of the paper shortage and continual steep rise in prices, supplies of stationery costing £612 have been accumulated. A particularly pleasant feature of the balance sheet is that, for the first time in many years, no overdraft at the bank is shown, while, to reflect the true position, the credit balance at the bank of £261 should be increased by approximately £1,800 representing grant earned but not actually paid in at the time of audit. The Council has decided, in view of the improved financial position, to establish a reserve fund to provide for likely contingencies.

The general income and expenditure account for the year shows that, in spite of rising costs on all sides, expenditure was generally little higher than in 1950. A notable exception was the cost of postage and telephone services, due in part to increased charges, in part to the growth in membership, and to the increased activity of the information department. Publication costs soared as a result of rises in the price of paper and labour; these increases were to some extent offset by an increase of £361 in revenue from sales of publications, following the increased subscription rates to periodicals fixed in the summer. As was expected, the cost of running the information bureau and library increased substantially, most of the increase being due to salaries. This was occasioned by the addition of staff to establish the new translations index and to handle the growing volume of routine work and by the replacement, towards the end of 1950, of the junior in charge of the library by a graduate. The subsidy of £391 needed by the Document Reproduction service was slightly lower than that budgeted at the beginning of the year and the Council is satisfied that it is justified by the value of the service to the growing section of the membership which now uses it. It is not, perhaps, fair to compare the

THE WORK OF ASLIB

conference expenses with the previous year, since the charges made by a university (1950) and an industrial conference centre (1951) inevitably differ considerably, while the most sudden rise in living costs in recent years, reflected in increased charges by all conference centres, took place in the first half of 1951. Part of the £493 subsidy shown in the accounts is, of course, the cost of the winter meetings for which no charge is made ; but consideration must be given to the contribution to overheads made by conference fees in recent years. The junior study group, however, paid its way.

The year's work has put Aslib in a stronger financial position than ever before. Nevertheless, even if the present rate of growth is maintained, it will inevitably be several years before adequate reserves have been accumulated to remove all anxiety about the future—the more so since, in the national interest, the expansion of services must keep pace with the acquisition of new funds.

Section C—Membership

For the first time, Aslib was able to devote adequate staff, finance and publicity literature to the recruiting of new members. The results of the campaign, which is continuing, are a gratifying indication both of the need for Aslib's services, and of the extensive field which still remains to be tapped. Although the campaign was handicapped by the absence of suitable printed literature until June, no less than 221 new members were enrolled. Of the £1,237 new subscription revenue thus received, £959 qualified for Government grant, making a gross increase in receipts of £2,196.

At the end of December the membership numbered 1,219, compared with 1,038 in 1950. The distribution of members among the five main categories is shown in the following table, together with comparable figures for 1950 :

<i>Category</i>	1950	1951	<i>Net increase</i>
Non-profit-making organizations ..	336	380	13%
Individuals	187	220	18%
Industrial and Commercial concerns	202	263	30%
Overseas Members of all categories	213	248	16%
British Government Departments ¹ ..	100	108	8%
TOTAL	1,038	1,219	17%

On the reverse side of the picture, it must be recorded that 40 members were suspended or resigned, though the growing number of members

¹ British Government Departments are included, since, while they are not members of Aslib in the strict sense of the term, they receive all privileges of membership under the conditions of Government grant.

who had resigned in previous years and have since rejoined is an encouraging sign that Aslib's development programme is providing needed facilities.

Section D—Conferences and Meetings

Interest in the Annual Conference, held on 5–8 October, at the conference centre of the Iron and Steel Corporation, Ashorne Hill, was greater than ever before, and a large number of late applicants had reluctantly to be turned away as all available accommodation had been booked. As the membership grows, so doubtless will the number wishing to profit from this one annual opportunity of contacts with the widest range of interests represented in Aslib, and members cannot be too strongly urged to register early for the 1952 Conference to be held from 19–22 September at The Hayes, Swanwick, Derbyshire. At the Ashorne Hill conference, a full report of which appears in *Aslib Proceedings*, Vol. 3, No. 4, Aslib was glad to have the company of the President and Lady Plant, the members of the O.E.E.C. Technical Assistance Mission No. 90, Mrs. Helen Brenner, representing the Special Libraries Association, and Dr. Julian F. Smith, of the Office of Naval Research, Washington.

The annual series of London meetings is always an illuminating sign of the variety of interests represented in Aslib. Last year's subjects, recorded below, were no exception :

- | | |
|-------------|---|
| 23 January | 'Impressions of American Special Libraries and Information Services', by Dr. Percy Dunsheath, Mr. Howard Drake, Miss Barbara Kyle and Dr. D. J. Urquhart. |
| 14 February | Visits to the G.P.O. Sorting Office at Mount Pleasant, arranged by the Librarian, Mr. E. C. Baker. |
| 8 March | 'How to choose a classification for your special library', by Mr. A. J. Wells. |
| 21 June | 'Observations on the training of librarians in Great Britain', by Dr. H. Lancour. |
| 7 November | 'Method Study', by Mr. J. P. Torrie. |
| 5 December | 'The Shel Film Unit Stock Shot Library', by Mr. Bernard Chibnall. |

The President and all four Vice-Presidents attended the Annual General Meeting, which attracted well over 100 members to the National Book League's rooms on 25 April, and some 75 new members were entertained to tea on 31 May by members of Council, the Director and his staff. Perhaps the most promising event of the year was the agreement of the Federation of British Industries to hold a joint conference with Aslib in the Spring, 1952. The intention is to illustrate the value of an information service to the heads of firms which have not so far established one of their own.

Section E—Education

The usual junior study course was held in April. It was attended by 57 students, slightly fewer than in previous years ; this was probably

THE WORK OF ASLIB

because much of the leeway had been made up, but the value attached to the course by those attending indicates that it still serves a useful if necessarily limited purpose, and plans have been made to repeat it in 1952.

Plans were also made to hold in February, 1952, a rather more advanced and specialized week-end course on 'Routine dissemination of information and abstracting'. In connection with the annual conference, much of which centred upon training, a list of available full-time and part-time courses in librarianship throughout the country was prepared.

The Education Committee continued its discussions on the qualifications and training of information officers. It is understood that courses based on its tentative conclusions may be introduced experimentally at certain library schools; and while the Council does not at present feel able to give formal approval to any particular course, it welcomes any experiments which arise from the growing realization of the importance of this question.

The Education Committee was fortunate enough to enjoy the company and advice, throughout his eight months' stay in Britain, of Dr. Harold Lancour, Assistant Director of the University of Illinois School of Librarianship.

Section F—Information Bureau and Library

Because of their central importance to the work of Aslib as a whole, it is proposed to analyse in some detail the transactions of the Information Bureau and the Library. Enquiries received by the Information Bureau numbered 3,521, an increase of 33 per cent over 1950—by far the greatest number being received from industrial and commercial concerns, with Government Departments and Government-sponsored organizations next in order. The following table shows the sources of these enquiries, at the same time illustrating the extent to which the telephone is used compared with the postal services :

<i>Source of Enquiries</i>	<i>Requests for inter- library loans</i>	<i>Telephone Enquiries</i>	<i>Postal Enquiries</i>
Societies and Institutions	64	222	36
Universities and Colleges	70	46	37
Government Departments, Research Associations, etc.	252	431	94
Public Libraries	14	71	55
Industrial and Commercial Firms..	695	795	224
Individual Members	157	70	41
Non-Members	3	55	89
TOTAL	1,255	1,690	576

The 1,255 requests for loans listed in the table are distinct from loans from the Aslib library, which are recorded below. Of this number, 999 were satisfactorily arranged (40 others were under negotiation on 31 December); no less than 47 per cent of them being possible only as a result of special facilities accorded to Aslib. The proportion of loans arranged is highly creditable, all the more since the great majority of requests are only made to Aslib when all other sources have failed.

The next table attempts to show the principal types of enquiry received and the number in each category. This analysis will be of particular value as a guide to the need for new Aslib services. To preserve the relationship with the preceding table, postal and telephone enquiries are shown separately :

<i>Type of Enquiry</i>	<i>Telephone Enquiries</i>	<i>Postal Enquiries</i>
Amplify or correct inadequate references ..	19	32
Entries in Aslib's indexes of theses or translations (before new index)	15	25
Complete bibliographical references of published works	464	129
Supply references on a specific subject ..	170	129
Enquiries for sources of information on a given subject	60	38
Names of manufacturers or suppliers ..	52	—
Matters of fact, addresses, etc.	310	70
Special library routines, training, etc. ..	182	106
Locations (not necessarily for loan)	379	27
Aslib's information services (from members)	39	—
Miscellaneous	—	20
TOTAL	1,690	576

Enquiries are usually answered in one of three principal ways, according to the nature of the enquiry and the circumstances of the case; either from Aslib's own resources, or by a quick check with a third party, if

THE WORK OF ASLIB

this appears possible, or by putting the enquirer in touch with the appropriate third party. The number of enquiries dealt with in each way is shown below :

<i>Disposal</i>	<i>Telephone Enquiries</i>	<i>Postal Enquiries</i>
Aslib's own resources	1,180	361
Quick check with third party	190	103
Enquirer referred to third party	195	71
Unanswered or negative answer	125	27
Pending on 31 December, 1951	—	14
TOTAL	1,690	576

The Information Bureau is still operating with far less staff and material than it needs and these deficiencies can only be made up as funds increase. It is encouraging, therefore, that 68 per cent of these enquiries could be answered from Aslib's resources and a further 13 per cent after only a quick telephone call. Moreover, 85 per cent (1,433 out of 1,690) of enquiries received by telephone were answered on the day of enquiry. In connection with the 152 unanswered enquiries (roughly 6 per cent of the total), it is worth remembering that again the majority of enquiries are made to Aslib only when other sources have failed and, secondly, that this number includes enquiries to which there is no positive answer. The number of personal callers seeking information from this department was 167.

Other activities of the Information Bureau and Library also showed a healthy upward trend. Loans from the library rose from 718 in 1950 to 1,236 in 1951, and 218 books and 149 pamphlets were added to the library. The document reproduction service, needing a subsidy of only £391, showed a substantial improvement over 1950 when the deficit was £635. Since its drastic reorganization in 1950, this service has continued to run smoothly and demands upon it are increasing, though it appears unlikely that it can ever become entirely self-supporting. Work began in March on the index of unpublished translations held in the Commonwealth and by the end of the year about 3,500 translations had been recorded. The project was widely welcomed in the Press. Of the 225 enquiries received, only 9 could be answered positively—a percentage virtually identical with the index of technical translations maintained by the Special Libraries Association in U.S.A. Even a negative reply, however, has some value and, in addition, the index contained very

few entries until October. There were 138 specialist translators registered and requests for their services numbered 90, compared with 94 in 1950. The index to university theses under consideration in 1950 is referred to in Section H of this report.

In the late summer, Treasury approval was finally given for payment of a special grant to launch a major new project. This was a consultant service, designed to assist the establishment of new information services within industrial firms and other organizations, to aid existing services if they asked for advice and, incidentally, to bring Aslib's services to the notice of potential members. This new service, which began officially on 1 January, 1952, also received much publicity in the technical and general Press. It will develop hand in hand with research into information techniques.

Section G—International Relations

The increasing importance of international bibliography, the dissolution of the British National Committee on Documentation in 1950 and the consequent loss of British representation in the international organization of bibliography made it necessary to consider afresh how far Aslib could commit itself, and claim to speak for Britain, in the international field. In spite of the many tasks remaining to be fulfilled in this country, it was the feeling of Council that it was both Aslib's interest and Aslib's responsibility to take a full part in such international activities. It accordingly set up a new International Relations Committee to advise on the overseas relations of Aslib and on other international questions of documentation; and later, on the recommendation of this committee, it offered to become a national member of the International Federation for Documentation (F.I.D.), on certain terms, which were accepted, in the first place, for a period of one year only.

Previously, in the absence of an official British section of the F.I.D., Aslib had undertaken to encourage British participation in the Federation's Conference in Rome in September, with the result that some half-dozen papers were submitted and twenty-six people attended from this country.

At this conference, the Council of the F.I.D., as a result of views supported by British participants, decided to set up a Committee of Reorganization; Aslib considered the problems which this Committee would have to deal with and put forward for its consideration a statement of Aslib's views on the future organization and activity of the Federation.

It can now be hoped that the Federation will be placed on a firm basis and that Aslib will be in a position to express British views on matters of international bibliography.

A signal honour was conferred upon Aslib in the summer when the Director was invited to act as secretary of the O.E.E.C. Mission No. 90 on its tour of Europe. Unfortunately, sickness prevented his going at the last minute, but Mrs. Lancaster-Jones nobly stepped into the breach with, from all accounts, conspicuous success.

Section H—Publications

The absence of any new Aslib publications during the year does not

THE WORK OF ASLIB

fully reflect the extent of the activities of the Publications Committee. The fruits of their labours necessarily take time to mature. While Collison's *Cataloguing, Arrangement and Filing of Special Material in Special Libraries* was reprinted and the *Report on Technical Information Services* of the similarly named panel of the Committee on Industrial Productivity was issued as an off-print from the *Journal of Documentation*, work continued on the forthcoming two-volumed "Directory of Sources of Specialized Information", the *Cumulative Book List* based on the quarterly and monthly issues of the *Aslib Book-List* published between 1935 and 1950, and the *Aslib* manual, now to be entitled *A Handbook of Special Librarianship and Information Work*.

At the suggestion of the British Council, which generously placed a substantial advance order, it was decided to publish a revised edition of the *Select List of Standard British Scientific and Technical Books*. Revision started in December with the first half of 1952 as the probable time of publication. Another notable step was the decision to publish an annual *Index to Theses Accepted for Higher Degrees in the Universities of the British Isles*. This was made possible by the cordial co-operation of the Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom, and compilation of the first volume, covering theses accepted in 1950-51, began with the object of publishing this work also as early as possible in 1952. Unfortunately, attempts to make this a joint publication of *Aslib* and the Library Association came to nothing. The committee was also examining the possibility of publishing a pamphlet on machines and appliances in special libraries and an English translation of Dr. Otto Frank's *Einführung in die Dokumentation*. For financial reasons and only after lengthy negotiations, it became necessary to decline reluctantly Unesco's invitation to publish a *Multilingual Vocabulary of Librarianship*, compiled for Unesco by the late M. Henri Lemaître and Mr. Anthony Thompson of the R.I.B.A.

Increased costs of paper and printing had their inevitable effects in June, when it became necessary to raise the subscription rates to the *Aslib Book-List*, *Aslib Proceedings* and the *Journal of Documentation*. This step had been delayed as long as possible. When at last it became unavoidable, it was decided to make a larger increase in the rates for non-members than in those for members, thus providing an added incentive to full membership. The sale of advertisement space in the periodicals was again disappointing, in spite of a promising beginning, and in December this task was placed in the hands of Messrs. Aldridge Press, Ltd., on a commission basis, in an attempt to achieve better results in 1952. The prospect of greater pressure on space in *Aslib Proceedings*, arising from the activities of the new Midlands branch and the new groups, led to the creation of an editorial panel to advise Miss Ditmas. The full job of editing the *Aslib Book-List* was taken over by the office; the Association is greatly indebted to Mrs. A. M. Whitrow for the invaluable work she did as Honorary Editor in 1950 and 1951. Members will be interested to learn that, with the aid of a special grant from the D.S.I.R., a Rotaprint machine has been installed and an order placed for

an electric proportional-spacing typewriter ; as soon as possible, they will be used to produce certain of the Aslib publications for which this non-traditional method of printing is suitable.

Section I—Midlands Branch

The decision to form a new branch of Aslib in the Midlands, a further step in the development of facilities for members in the provinces, derives both from the pioneering enthusiasm of the Northern Branch and from the interest of an active band of members in and around Birmingham. A meeting was held in Birmingham in June and the 60 or so members present unanimously voted for the formation of a branch. The organizing committee, which was then set up, arranged the inaugural meeting, and this took place on 20 September at the Imperial Hotel, Birmingham, with Sir Patrick Hannon in the chair. On 21 November, Mr. E. N. Simons read a paper entitled 'What is an Information Officer ?' at the first open meeting of the new branch. As 1952 opens, it is already obvious that the branch will be able to count upon an energetic committee to provide an interesting and valuable programme of activities.

Section J—Northern Branch

In accordance with its policy of reducing its own territory to manageable proportions by creating new branches, the Northern Branch was responsible for the meeting at Birmingham in June which fathered the Midlands Branch. By agreement with the branches, the 53rd parallel was designated as the boundary dividing the two branch areas, a solution that at least has the merit of showing that Aslib is not impervious to the influences of world events. Members living in counties divided by the parallel were permitted to opt for membership of one or other branch to suit their personal wishes and convenience.

Besides holding meetings at Leicester on 9 March and at Birmingham on 14 and 15 June, the Branch undertook a particularly important enquiry, prompted by abnormal delays in the publication of patent specifications, abridgements and indexes by the Patent Office and H.M.S.O. This led to an amicable examination of remedial measures by these two public bodies jointly with Aslib and other national organizations. A continuing committee was created to watch the effects of the measures adopted and, as reported in *Aslib Information* in December, very substantial progress had been achieved by the end of the year.

Section K—Scottish Branch

The Branch suffered a great loss, and one from which it has still not fully recovered, when Mrs. Margaret Spence had to resign in February on taking up a new and important appointment. She had contributed greatly to the success of the branch, as its honorary secretary, since its formation in 1949. Though she could ill afford the time, Miss E. Handlen agreed to keep the wheels turning until a permanent successor could be found, and it is largely due to her that the branch was able to carry out

THE WORK OF ASLIB

its programme for the year. The question of a successor to Mrs. Spence is now urgent.

In spite of this central difficulty, the Branch held a very successful and well-attended conference on 25 May. The Royal Society of Edinburgh placed its premises at the disposal of the Branch, and the conference was opened by Miss Margaret Herbison, M.P., Joint Parliamentary Under-Secretary of State for Scotland. Professor James Kendall, President of the Royal Society of Edinburgh, gave an address of welcome. Because of the difficulties of travel, the Branch has consistently aimed at holding one full-scale conference a year rather than a series of shorter meetings, and the success of the May conference is ample justification of that policy.

Section L—Special Groups

In response to a suggestion made at the Annual Conference in 1950, a start was made early in 1951 towards forming the first of a number of special groups, each representing a particular interest among the membership. Their purpose is to provide a forum for any reasonably large and homogeneous body of members, and to undertake specific practical jobs of value to the particular industry or field which each group represents. By mid-summer, groups had been formed for librarians and information officers primarily concerned with textiles, with economics, and with food and agriculture.

In September an aeronautical engineering group was established and at the Annual Conference, a session of which was given over to the groups, the first steps were taken towards the formation of a fuel and power group. It is worth recording that the Aeronautical Group was formed not on Aslib's initiative but at the instigation of members of the aeronautical industry, and it says much for the group's vigour that it has already secured substantial recognition outside Aslib. About 100 representatives of the industry attended its inaugural meeting at the R.A.E., Farnborough. The Royal Aeronautical Society generously gave up one of its main winter meetings to a joint meeting with the group on 'The availability and use of aeronautical information', and valuable relations were established with foreign organizations, including the Engineering Aeronautics Group of the Special Libraries Association and the Dutch Nationaal Luchtvaartlaboratorium at Amsterdam.

Though certain common tendencies can be seen (e.g. all groups gave a high priority to the compilation of union catalogues of periodicals within their field), it was clear from the outset that the groups would develop a healthy divergency in accordance with their varying special needs. In addition to a union catalogue, the Textile Group began a comparative study of classification systems used by textiles librarians and set in motion a plan for sharing the cost and labour of making translations of foreign articles.

The Aeronautical Group has set up working parties to consider abstracting, the indexing of aerodynamic data and the compilation of a union list of periodicals.

Section M—Staff

An appreciation of Aslib's expansion during the year may be gained from the fact that the staff had increased from 15 to 20 in December, while an additional appointment—that of the Consultant—had been made to take effect on 1 January, 1952. Council is glad to put on record its appreciation of the loyal and enthusiastic work of the Director and staff, and its pleasure at the happy atmosphere in which they work. A superannuation scheme was instituted for senior members of the staff, and all full-time staff received an additional increment in July to help meet the rising cost of living. Aslib's resources are still not sufficient to permit staff remuneration on the level that the Council would like, but improvement is being made as far as the unstable economic situation allows.

Section N—Relations with other Organizations

It is not proposed to describe at length in this report the many ways in which Aslib has helped, and been helped by, other bodies in this country and overseas. Some of them are mentioned incidentally in the various sections of this report; others are reflected in the list of organizations which have enlisted the services of Aslib's representatives in their own committees; many others do not appear by name but have sent students to the Aslib library, accredited official representatives to Aslib conferences, sought Aslib's support and advice for their own undertakings or shown in diverse ways that Aslib's contribution to national and international progress is recognized and valued. This is a sure test of any organization's value to the community, and the Council is glad to have had the opportunity of assisting so many other bodies and to have received much help from them in return.

Signed on behalf of the Council,

G. WOLEDGE,
Chairman.

BRITISH UNION CATALOGUE OF PERIODICALS

EIGHTH ANNUAL REPORT OF THE COUNCIL FOR THE YEAR ENDED 31ST MARCH, 1952

The compilation of the British Union Catalogue of Periodicals has now advanced to a position from which it is possible to obtain a fairly clear view of its ultimate scope and potentialities.

The files now contain the bibliographical particulars (so far as these can be ascertained) of about 130,000 periodicals. The term 'periodicals' has been interpreted in a liberal sense, and includes not only the normal public periodical press, but also the transactions and associated publications of societies and institutions, the periodical publications of national governments and public bodies, and annuals in great variety. These cover the periodical publications of the world which are represented in the permanent stocks of British libraries.

Important though this bibliographical catalogue of periodicals undoubtedly is, the more vital service rendered by BUCOP is the information relating to where this immense volume of material is to be found in British libraries. We have been fortunate in enlisting the friendly co-operation of libraries of all kinds throughout the country, ranging from the great national, university and public libraries to small but important specialized collections. We are especially grateful to those libraries which have undertaken so willingly the considerable labour of preparing lists of their holdings of all kinds of periodicals for our special benefit.

Other libraries, which in more favourable circumstances would have been willing to co-operate in this way, have been unable to do so owing to local difficulties. In such cases, where the library has been of outstanding importance, we have arranged for 'field work' to be undertaken in order to secure its inclusion in BUCOP.

Up to date, the particulars of the holdings of periodicals in about 140 libraries have been recorded from lists supplied directly. It is envisaged that particulars of the holdings of about 300 libraries will be recorded, representing over a million references to located material.

The changes in the scope and policy of our work, described in our Seventh Annual Report,¹ have resulted in much progress being made during the past year. They have enabled practically the whole time of the Editor and staff to be devoted to the essential task of incorporating the particulars of library holdings in our files; with the result that nearly one hundred libraries have been dealt with during the twelve months.

This work of incorporating particulars of holdings in a file of such magnitude is laborious, and involves careful and constant checking, and considerable revision of entries arising from fuller and more accurate information. The extremely accurate bibliographical information sup-

¹ See *Aslib Proceedings*, vol. 4, no. 1, pp. 53-5.

plied by some libraries, in particular the Birmingham Public Library, has been of much assistance in this revision.

An interesting and valuable outcome of the lists supplied by libraries has been the addition to our files of some thousands of entries for periodicals not previously recorded by us. In many cases these holdings are unique in this country, and enable us to provide information about the location of material hitherto very difficult to trace.

Although BUCOP is only in process of compilation, many enquiries for information regarding the availability of periodicals are being received from libraries, institutions and private individuals. We have been glad to give what help we can, in spite of the fact that time spent on such research can ill be spared. These enquiries are a test of the value of BUCOP. Such enquiries are also an indication of the widespread need for BUCOP, and of the expectancy with which its eventual appearance is regarded both here and abroad. Every additional holding recorded increases the usefulness of our files, and there has been a constant improvement in the extent of the information we have been able to supply.

During the year two Sub-committees have been at work. One has made a further careful review of the list of libraries with which co-operation is most desirable, and has compiled a definite list of those which are to be included so far as may be possible. The other Sub-committee, the work of which is still proceeding, is concerned with the problems of printing and producing BUCOP by either traditional or non-traditional methods and other matters linked with eventual publication.

We have pleasure in expressing our most grateful thanks to the Rockefeller Trustees for their continued financial support. We are anxious that the greatest use possible shall be made of this generous grant before it is exhausted.

Our thanks are also due to the Trustees of the British Museum, who have continued to make the considerable contribution of providing accommodation for our work.

Mr. James D. Stewart, M.B.E., F.L.A., has continued his work as Editor and Executive Officer for a second year. Miss M. E. Hammond, F.L.A., chief cataloguer, and Dr. E. Saenger, cataloguer, have also continued to give unremitting and expert service in an exacting task, and to them our thanks are due, not only for the manner in which they have carried out their work, but also for their loyalty to an organization of possibly limited duration.

BRITISH UNION CATALOGUE OF PERIODICALS
INCOME AND EXPENDITURE FOR THE YEAR ENDED 31ST
MARCH, 1952

Year to 31/3/51			£	s.	d.	£	s.	d.
£	£							
	2,000	GRANT FROM ROCKEFELLER FOUNDATION ..				2,000	0	0
		LESS EXPENDITURE						
25		Administrative Expenses	25	0	0			
1,674		Salaries	1,754	11	1			
4		Printing and Stationery	18	17	0			
2		Postage	5	0	0			
1		Travelling Expenses	23	13	5			
3		Audit and Accountancy	3	3	0			
1		Sundry Expenses	7	6				
	1,710					1,830	17	0
		SURPLUS FOR THE YEAR ENDED 31ST MARCH, 1952				169	3	0
	290							
		ACCUMULATED SURPLUS brought forward at 1st April, 1951	363	11	0			
74		Add Surplus for the year ended 31st March, 1952	169	3	0			
	290					532	14	0
	364							
		Represented by						
394		Cash at Bank on Current Account ..	59	9	2			
		Post Office Savings Bank Account ..	500	0	0			
28		Cash in Hand	36	13	10			
422			596	3	0			
58		Less Sundry Creditors	63	9	0			
	364					532	14	0

We have examined the above Income and Expenditure Account with the Books and Records of ASLIB and certify that it is correct and in accordance therewith.

(Signed) WEST & DRAKE,
Chartered Accountants.

Sardinia House,
52, Lincoln's Inn Fields,
London, W.C.2.
5th May, 1952.

VOL. 4, No. 3

ASLIB PROCEEDINGS

AUGUST 1952

TWENTY-SEVENTH ANNUAL CONFERENCE, 1952

CONTENTS

	PAGE
INTRODUCTION	183
LIST OF DELEGATES AND VISITORS	185
<i>Saturday, 20th September</i>	
THE SIGNIFICANCE OF INFORMATION IN PRESENT-DAY INDUSTRIAL SOCIETY.	
PROFESSOR T. U. MATTHEW, M.SC., PH.D. (Professor of Principles of Engineering Production, University of Birmingham)	195
<i>Chairman:</i> SIR STEPHEN TALLENTS, K.C.M.G., C.B., C.B.E.	
INFORMATION SERVICES IN PUBLIC LIBRARIES.	
ROBERT L. COLLISON, F.L.A. (Reference Librarian, Westminster Public Libraries)	213
<i>Chairman:</i> F. C. FRANCIS, M.A., F.S.A.	
INFORMATION SERVICES OF THE FESTIVAL OF BRITAIN.	
J. W. TRIGGS, M.B.E. (Lately Deputy Director of Public Relations, Festival of Britain)	225
<i>Chairman:</i> MISS BARBARA KYLE.	
<i>Sunday, 21st September</i>	
A REVIEW OF THE RESULTS OF THE ROYAL SOCIETY SCIENTIFIC INFORMATION CONFERENCE, 1948.	
D. J. URQUHART, PH.D. (Principal Scientific Officer, Department of Scientific and Industrial Research)	233
ACTION TAKEN BY ASLIB TO IMPLEMENT THE CONFERENCE'S PROPOSALS.	
LESLIE WILSON, M.A. (Director of Aslib)	241
<i>Chairman:</i> J. E. CUMMINS, M.SC., F.R.I.C.	
TOURING AND EMERGENCY SERVICES OF THE AUTOMOBILE ASSOCIATION.	
RONALD CANN EVANS, M.A. (Touring Manager of the Automobile Association)	255
<i>Chairman:</i> E. N. SIMONS.	
VOTES OF THANKS	265
EXHIBITION NOTES.	
C. E. C. HEWETSON (Consultant, Aslib)	266
INDEX TO VOL. 4	272



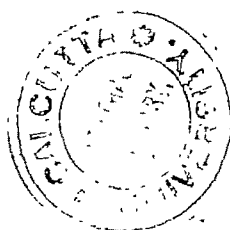
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ASLIB PROCEEDINGS

Volume 4

November, 1952

Number 4

INTRODUCTION

NEARLY 270 Aslib members, listed on pp. 185-194, attended the Annual Conference for 1952 from 19th to 22nd September at The Hayes, the large conference centre near Swanwick, in Derbyshire. Some members missed the charm of Ashorne Hill, now too small to hold all the conference visitors, but the efficiency and helpfulness of The Hayes staff did everything to make the week-end pleasant.

Once again Aslib was fortunate in being able to welcome to the Conference a number of overseas guests and members, including Miss Ruth Savord, representing the Special Libraries Association (U.S.A.), Mr. A. A. Rosenblum, representing the Association of Special Libraries and Information Services (Australia), and Mrs. Rosenblum, and Mr. M. Verhoef, of the International Federation for Documentation.

Most of the guests arrived by Friday evening and after dinner were made welcome by the Conference Committee and members of the Aslib staff. The exhibition of library equipment was then opened and members must have been struck by the pleasing design of many of the exhibits and the care shown in their presentation. Through the kindness of Mr. Chibnall, Librarian of the Shell Film Unit, a film show of documentaries followed and this included a visual record of a railway journey from London to Brighton photographed from the engine so as to run for four minutes: the psychological effect was that of being in a low-flying aircraft.

On Saturday morning, the principal speaker, Professor T. U. Matthew, Professor of Principles of Engineering Production at the University of Birmingham, who was introduced from the Chair by Sir Stephen Tallents, read his paper 'The significance of information in present-day industrial society'. This paper, which is printed on p. 195, set the theme for the Conference, and the remaining papers demonstrated the range of information work by showing its connection with such different institutions as the Festival of Britain and the Automobile Association. Mr. J. W. Triggs, M.B.E., late Deputy Director of the Festival Information Service, and Mr. Ronald Cann Evans, M.A., Touring Manager of the A.A., were the speakers in the talks given on Saturday and Sunday evenings.

On Saturday afternoon, Mr. Collison drew on the experience he had gained, both as Reference Librarian of the Westminster Public Libraries and during his stay in the United States, to describe the type of information service that might be expected from a public reference library. On Sunday morning, Dr. Urquhart, of the D.S.I.R., and the Director of

Aslib reviewed the results of the Royal Society Scientific Information Conference of 1948. When the Chairman, Mr. J. E. Cummins, of the Australian Scientific Liaison Office, threw the meeting open to discussion, it was clear that many members had given much thought to the subject and had decided views.

On Saturday afternoon, members took advantage of two coach trips that had been arranged to visit Dovedale, a local beauty spot, and Haddon Hall, a mediæval baronial hall situated near the River Wye and one of the most famous ancient mansions in England. There was a further coach trip on Sunday afternoon through Sherwood Forest to the fine Norman Minster of Southwell.

Since so many members were present the opportunity was taken of holding Subject Group meetings during the Conference. The Chairman of the Engineering Group reported on the compilation of a union list of periodicals, reference books and bibliographies in the engineering field. The Secretary of the Aeronautics Group presented the reports of the four working parties, Miss Savord spoke of the work of the S.L.A. Subject Groups, and Miss Rom gave an account of the Nationaal Luchtvaartlaboratorium's proposed scheme for cataloguing aerodynamic data. In the Textile Group, Mr. Freedland reported that the union list of periodicals would soon be duplicated and distributed.

EDITORIAL POSTSCRIPT

Attention is drawn to two innovations in this year's record of the conference proceedings. At the request of many members the list of those attending includes a note of the office which they hold in their respective organizations, the information being compiled as far as possible from the application forms. Secondly, some notes on the exhibition of library equipment have been included in the hope that they will be of interest to those who were not able to be present.

E. M. R. DITMAS,
Editor.

LIST OF DELEGATES AND VISITORS TO THE TWENTY-SEVENTH ANNUAL CONFERENCE

AICHER, Miss R. (Information Officer)	Petrocarbon, Ltd.
ALLEN, J. E. B. (Librarian, Engineering Department Library)	Automatic Telephone & Electric Co., Ltd.
ALLISON, GORDON W.	Automobile Association
ANDREWS, Mrs. E., Ph.D., A.R.I.C. (Librarian/Abstractor, Research Department)	Johnson & Johnson (Gt. Britain), Ltd.
ARDERN, L. L., F.L.A. (Librarian)	Manchester College of Technology Library
ASHWORTH, WILFRED, B.Sc., F.L.A., A.R.P.S. (Librarian and Information Officer)	British Nylon Spinners, Ltd.
ASHWORTH, Mrs. E. E.	Wife of Mr. W. Ashworth
AUSTEN, G. E. (Deputy Information Officer)	Electrical Research Association
BAGGS, Miss B. M., M.Sc. (Librarian)	Grassland Research Station
BAGWELL, A. G. N. (Librarian)	Cement and Concrete Association
BAINES, C. C., B.Sc.	Kodak, Ltd., Research Library
BAKER, E. ALAN (Librarian)	Ministry of Food Library
BARNES, G. A., F.L.A. (Librarian, General Section)	Colonial Office Library
BATTY, Miss MARGARET A. (Librarian)	Textile Institute
BISKE, V., LL.M., B.Sc., F.R.I.C., F.Inst.Pet., Barrister-at-Law (Information Officer)	Lobitos Oilfields, Ltd.
BLAKE, Mrs. DOREEN	Individual Member
BLAND, B. M., B.Com. (Deputy Librarian)	Birmingham University Library
BLOIS, Miss J. M. (Library Assistant)	General Electric Co., Ltd., Research Laboratories
BODDY, Miss ELIZABETH (Hon. Secretary, Aslib Northern Branch)	Edgar Allen & Co., Ltd.
BONHOMME, Mrs. V., B.A. (Librarian, Technical Library)	General Electric Co., Ltd., Coventry
BOODSON, K., A.L.A. (Librarian, Public Relations Department)	Imperial Chemical Industries, Ltd., Metals Division
BRAY, G. T., F.R.I.C. (Librarian)	Imperial Institute
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THE SIGNIFICANCE OF INFORMATION IN PRESENT-DAY INDUSTRIAL SOCIETY

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BEFORE attempting to forecast the future trends and possibilities in the provision of information services for industry it is necessary first of all to consider the characteristics of present-day industrial society and, secondly, the information needs of the industrial units upon which our present economy is based.

The subject of Engineering Production is concerned with all the factors, internal and external, human and material, which affect the economics, productivity and progress of industrial organizations. During the past decade there has been an increasing realization that one of the most important of the factors affecting the progress of the individual company, no less than that of present-day industrial society as a whole, is the organization and supply of information on all the subjects, commercial, technical and social, with which the different functions of industrial management are concerned.

The recent progress which has been made in the provision of new information services on the scientific and technical side at the international level under such bodies as O.E.E.C. (The Organization for European Economic Co-operation) and the British Commonwealth Scientific Mission, in Washington, has been followed during the last year or two by the setting up of national organizations designed to stimulate exchange of ideas and the flow of information in all our key industries. The work of Aslib in this field is, of course, well known and the work of the Anglo-American Council of Productivity is an outstanding example of new organizational means of this type. There is no question of the significance and importance of such activities from the industrial and national viewpoint.

The characteristics of present-day industrial society

The character of progressive present-day industry can be summed up in two words—it is dynamic and democratic.

Industry has become dependent for new production processes, new machinery and new materials upon scientific discovery, research and invention, to an ever-increasing extent during the past century, and this trend will undoubtedly continue in the future.

Fundamental scientific research, followed by applied research and industrial development work, gives rise, in time, to new processes and new products, and these inevitably lead on to new problems which can be solved only by further fundamental research. We have, in fact, in our present-day scientific and industrial society, achieved a new type of chain-reaction in which new knowledge and ideas travelling, not with

the speed of nuclear fission products, but at a speed governed by the effectiveness of our information services and means of publication and communication, give rise to an endless succession of transmutations and further ideas in an ever-widening range of specialized fields of research and development.

With the exception of certain areas in the field of nuclear physics, and in the application of science to national defence, new ideas and knowledge in science and engineering still follow a centuries-old tradition and flow freely on the printed page and between scientists and engineers in all countries. Thousands of research workers in this country and in all parts of the world contribute daily to our growing stocks of knowledge in many inter-related fields and their work as it is developed brings about an inevitable sequence of changes in established industries and in many cases provides the basis for the creation of entirely new industries.

The enormous post-war capital development programmes of our large-scale industries producing coal, steel, chemicals and other primary products is evidence of the impact of this new knowledge on established industries.

Similarly, the growing expenditure of industry upon research and development work within the individual company as well as in the industrial research associations, provides evidence of the importance attached by progressive companies to the interpretation and use in industry of new knowledge, although the number of such companies is small. The recent F.B.I. survey of 'Research and development in British industry' shows that compared with a pre-war expenditure of £5½ million per annum, British industry to-day may be estimated to be spending at least £30 million per annum on industrial research and employing upwards of 40,000 people, including some 10,000 university graduates, on this work.

This trend has now become firmly established and it seems clear that the rapid introduction of technological change has come to be regarded as an inevitable condition for healthy economic life and social progress in most of our leading industries to-day.

We are conscious, also, that in the past, British scientists and engineers have made discoveries which, in too many cases, were developed industrially in other countries. We can no longer afford to gift these discoveries to other nations nor to be left behind in the process of applying new knowledge in established industries and to the creation of new products. Speed in examining new patents and in developing and protecting new inventions has thus become important in our modern industrial life.

The recent founding of the National Research Development Corporation is evidence of the importance which we attach as an industrial nation to this subject. The new Corporation is designed to protect and, where necessary, to develop British inventions and new discoveries emerging from the research stage and thus provides an additional means whereby more of our creative inventiveness may become revenue producing, either by more rapid development or by overseas licence of patents. However, this is a relatively minor activity when viewed against the

MATTHEW : THE SIGNIFICANCE OF INFORMATION

volume of scientific discovery which remains undeveloped, and the main responsibility for bringing existing knowledge to the production stage remains with the managements of our leading companies in every branch of industry.

Clearly, present-day industry has a growing need for effective information services and also for a dynamic plant replacement and product re-design policy in these circumstances. Technological change is inevitable and an improved design for a new machine tool or product is often on the drawing board when the first new machine or product is being delivered ! For this reason the saying applied to new stratosphere aircraft under test, 'if you can see it, it's obsolete', might equally well be applied in another sense to the latest production machinery immediately after installation in the factory.

Finally, it should not be overlooked that the development of modern techniques for conducting population surveys and market research have provided a new means of communication between producers and consumers, and the new knowledge thus gained is acting as a further stimulus towards industrial development and higher productivity.

The second characteristic of progressive present-day industry is that it is essentially democratic in nature. New concepts of democratic leadership, together with a better understanding of the human factor in industry, have led to important advances in industrial relations in recent years.

The need for the mass production of munitions in the First World War focused attention upon the importance of the human factor in industry and gave rise to a succession of research studies and to the development of new knowledge of the effect of the environment and of methods of work on the health and effectiveness of the worker. The experiences of the 1930's in the depressed areas emphasized the need for new national policies on employment and on the distribution and location of industry.

Industrial development and growth has been influenced to a considerable extent by these policies. An excellent example is the establishment of new industries and branch factories in the development areas where the immobility of the labour force has been countered by making industry become mobile to meet the social need even at some extra cost to the companies concerned and ultimately to the consumer.

During the recent war new and increased emphasis was given to the human factor, and this has led to the development of the present-day positive approach to industrial relations. The new industrial democracy, which has been achieved with its machinery of works councils and joint consultation between employers and employees on all matters affecting production, represents to a large extent an extension of means of personal contact between management and workers. It is also an additional informal means for transmitting ideas and information rapidly and effectively between different levels in the organization. At the same time the new emphasis on the human factor has led not only to increased attention being given to occupational selection and training, new standards of safety, of ventilation, lighting and seating in the modern factory, but also to an extension of social services on a national scale.

This brief review of a changing scene would not be complete without referring to the loss of most of our overseas capital investments as a result of the war and to the great social changes which have taken place in other countries. In addition, the rapid industrialization of many of these countries during recent years has resulted in a loss of important markets for our consumer goods industries, and this trend is likely to continue.

British industry thus requires to be dynamic in the sense of meeting changes in the pattern of demand from our export markets with new or improved products and services, in addition to maintaining a dynamic policy of technical change in keeping with scientific and industrial research progress. At the same time, industrial managers and other employees in each individual company have the joint duty of maintaining the democratic outlook which has become part of our social pattern.

The information needs of the industrial company

It is against a background of constant changes in production technology, in market requirements and in human relationships that we have to study the information needs of the individual company, which may be regarded as the basic unit of present-day industrial society.

The essential purpose of industry is to provide the products and services required by consumers for the least expenditure of human effort, of capital, of raw materials and other services ; in other words, at the highest level of productivity. The major points of contact on which information is required by management, as the planning, directing and co-ordinating force in the enterprise, are, therefore :

- (a) The consumers—whose requirements have to be assessed by
overseas representatives and agents,
chambers of commerce,
trade commissioners,
market research consultants,
or local sales organizations.
- (b) The employees of all ranks—whose active co-operation and understanding is sought and secured through good industrial relations, developed and aided by
recruitment and training organizations,
works councils and joint consultation,
trade union organizations.
- (c) Shareholders and other sources of capital—with whom contact is maintained through such bodies as the
Stock Exchange, banks,
shareholders' meetings,
finance organizations.
- (d) Suppliers of raw materials, electric power, water and other services, and of production equipment—with whom contact is maintained directly, and through
marketing organizations,

MATTHEW : THE SIGNIFICANCE OF INFORMATION

chambers of commerce,
trade associations, and
development associations.

And also suppliers of specialized professional services—whose aid is obtained through professional channels in the

legal, accounting, insurance, patent and other specialized fields.

In addition to these management has to maintain contact with :

(e) External regulating and controlling authorities

Local authorities responsible for municipal and other bye-laws and regulations

Government Depts.—Board of Trade

Ministry of Labour

Factory Inspectorate

Inland Revenue

Public Health

Employers Federation—Wage Agreements

Trade Association—Trade Agreements

Trade Exhibitions

British Standards Institution—Standardization Agreements

(f) Research and development resources

research associations

D.S.I.R.—N.P.L.

universities

professional institutions and societies

Patent Office

information sources (Aslib, T.I.D.U.).

The management of the company is responsible for maintaining up-to-date information on all these points of contact as a basis for planning, directing and co-ordinating all the phases of business operations from financing, purchasing and production through to sales. It is important that the current operations of the enterprise should be well directed and equally vital that impending changes affecting credit, raw material supplies, labour availability or market demand, should be recognized well in advance and steps taken by management to anticipate the new situation likely to arise. Similarly, management cannot assume that any of the technical factors in production are static. Long-term changes in the raw materials supply position, in production processes, or equipment design, must be kept constantly under review.

Thus management cannot plan or direct effectively without organizing a constant flow of information on the current position, the immediate future, and the long-term trend in relation to each major function under its control. The normal procedure in organizing this flow of information is to appoint and train a number of management assistants or functional specialists to administer the activities of the major functions in the enterprise, which are usually six in number, i.e. (i) financial, (ii) accounting, (iii) technical (research, design, and plant engineering), (iv) production, (v) purchasing and sales, and (vi) personnel : depending to some extent upon the size of the company.

This extraordinarily wide range of information is required by every productive unit in this country, potentially at least, but in many cases only a partial organization has been effected, and in such cases one or more of the essential functions of management must remain ineffective.

It may be of value at this point to refer briefly to some research work which is being carried out by Mr. G. Gilfillan, under my direction at the University of Birmingham, on the use of scientific and technical information in Midland industries, with the support of D.S.I.R. We have attempted to ascertain from detailed studies of a number of companies exactly how new ideas on technical processes are sought for and reach the executives, upon whose decision their adoption and use depends. In a number of companies, some employing up to 3,000 people, we have found that not more than one or two key men in the entire organization were actively engaged in the essential task of seeking for and applying technical information, although these firms were engaged in the production of engineering products. Furthermore, only in exceptional cases was any significant amount of development work being done on production processes and products, the executives preferring to await the appearance on the market of a fully-developed competitive machine or product incorporating the results of research and development done elsewhere.

These studies suggest that the technical managers of many British firms are content to rely upon the research associations to keep them advised of technical developments affecting their interests. Furthermore, in spite of the evidence produced by the F.B.I. survey already referred to, many firms are not prepared to spend time or money on development work and prefer to buy innovations in the fully developed form. In these circumstances trade journals and displays of fully developed equipment, such as the machine tool and instrument makers' exhibitions and the British Industries Fair, must be regarded as the most used information channels for many, and possibly the majority of, British firms.

The larger industrial group is in a much happier position on the technical information side. Not only is the larger group able to maintain membership of several research and development associations, but it is in a position to develop a central library and information service.

A number of excellent examples of group information services exist in the Midland area and elsewhere in this country. In many cases these services have been able to demonstrate effectively the practical and economic advantages of a well-organized specialist service. In some cases the information service starting as an aid to the technical function, with the emphasis on research information, has gone on to become a valuable source of guidance to all the other major functions of management, including production, purchasing and sales.

Future possibilities and trends

In looking to the future of information services capable of covering the entire range of management needs for information on current,

MATTHEW : THE SIGNIFICANCE OF INFORMATION

immediate, future and long-term trends, we have, already, solid ground from which to forecast the probable pattern of future development.

It is already clear, as Sir Henry Tizard and other leading scientists have stated, that the present rate of discovery arising from fundamental research in physics, chemistry and in the applied sciences far exceeds the digestive capacity of our existing industrial development resources.

New information is thus accumulating in scientific literature at a rate much faster than can be used effectively. This is particularly true in the chemical field where the possibilities of new products which have been synthesized in the research laboratory remain to be explored and their potential value recognized, in the same way as D.D.T., synthesized in 1874, remained a laboratory curiosity until its usefulness as an insecticide was discovered by applied research in 1939. Hence the growing pressure and the urgent demand for more technologists and for a new technological university capable of training the men to fill the growing gap which exists between scientific research and industrial application.

This new drive may well double again the current output of applied scientists and engineers in the coming decade. We can, therefore, expect the mounting pressure on existing information services to continue and we can anticipate a growing need for the extension and further specialization of these services to meet the needs of these men.

There is also evidence that the exploration of the world's raw material resources has already exceeded the capacity of the countries concerned to finance and organize their development, and this applies particularly in our own colonial areas and in the Dominions, and to an even greater extent in the under-developed areas of the world. Hence we find statesmen in different countries continuing to formulate development schemes such as the Technical Assistance Projects of the United Nations, the Point 4 Plan of the American Government and our own Colombo Plan. All these far-reaching projects for the development and raising of the standard of living of people in under-developed areas are only now making a start and in the next few years we can expect the people responsible to make increasing demands upon the information services which are available both in this country and elsewhere in the world.

Steps are already being taken to extend facilities for the exchange of technical information internationally through O.E.E.C.¹ and the B.C.S.O.² and nationally through Aslib, D.S.I.R. and T.I.D.U., and the development associations. These efforts are likely to result in the faster accumulation, abstracting and classification of information on research and technical developments on production methods and on raw material resources, and market opportunities throughout the world. This will throw a further load in the near future upon existing information services in industry, but at the same time will provide them with an opportunity of tapping, at small expense, a much wider area of information than has been possible hitherto.

¹ O.E.E.C. Organization for European Economic Co-operation.

² B.C.S.O. British Commonwealth Scientific Office.

Where information services do not exist in the individual company, however, all this work may pass unnoticed until the increased supply of technologists and engineers spreads gradually throughout industry to carry new knowledge into use. This is a long-term prospect, however, and is out of keeping with our immediate economic needs. We have to consider how individual industrial managers who have not hitherto used our great wealth of existing information services can be assisted to do so using their present resources of staff.

Henri Fayol, fifty years ago, stated that all industrial organizations have six major activities or functions which must be properly planned, organized and controlled by general management if the organization as a whole is to be effective. We have now reached a stage in the evolution of industrial organization when six functions are no longer sufficient. The seventh function must now be added, and I suggest that the information function should be formally recognized as the new seventh function of management. It is upon the development of this function in the individual enterprise during the next decade that the long-term future of British industry may well depend.

A number of our larger industrial groups have already recognized the need for such a development. In most companies, however, every functional manager in charge of finance, accounts, purchasing, sales, engineering, production, personnel, is usually expected to maintain his own contact with world, national and trade sources of information on all the current, immediate future and long-term trends affecting his own specialized functions and the companies' interests as a whole. In most cases it is difficult enough to keep up to date with current information and it is an impossible task for the untrained man to keep reviewing the literature of his own and overlapping fields with the object of discerning future trends. The result is that this perspective is rarely gained and the effectiveness of the productive unit suffers accordingly.

The task of the industrial manager who recognizes the need for developing the information function as a means of increasing the effectiveness of his organization is :

First, he has to take the definite step of charging a senior executive with the responsibility for reviewing and reporting upon and maintaining the essential key information services required by the organization at all levels, and secondly, he has to seek for means of educating and training his existing staff to make use of the information services provided.

These are comparatively simple steps which can be taken by every manager in British industry. They would necessitate increased provision being made for training information staff and for the part-time training of designers, production engineers, sales managers and all other key personnel in the recognition and use of existing sources of information, but this should not be difficult.

There are great possibilities both for the future progress of industry—and of libraries and information services—latent in this proposal for the development of the information function of management in the individual

MATTHEW : THE SIGNIFICANCE OF INFORMATION

company. The professional and public information services have everything to gain by encouraging and lending direct assistance to the industrial manager in this direction.

In conclusion, I should like to suggest, on the basis of our experience in the Midlands, how this interest might be encouraged in the future. In collaboration with the Birmingham Chamber of Commerce last June, an invitation was issued to 3,000 manufacturing members of the Chamber to submit confidentially to a voluntary panel of engineers, librarians and information officers, any technical problems for which an answer had not been found through any of the existing sources of information known to the companies. A most encouraging response was received to this offer and some forty questions, some purely commercial but others of a highly technical nature, were submitted, and after discussion by the information panel, were passed on the most likely information source. In due course the answers, received in some cases from overseas, were sent on to the enquirer.

This experimental approach has provided a useful insight into industrial needs for new channels of information and in some cases for fundamental and applied research in new fields. Possibly, this experiment might be repeated in other localities in the future as a positive informal means of bringing information services into touch with an ever-widening circle of industrial engineers and managers.

Chairman's remarks

SIR STEPHEN TALLENTS, K.C.M.G., C.B., C.B.E., who occupied the Chair at the first session, said that this was a more daunting experience for him than might be realized. Although he had often thought how much time was wasted on after-luncheon and after-dinner speeches, after-breakfast speeches were for him a new experience. Moreover, he was facing an audience much more erudite and up to date in the subject for discussion than he could claim to be.

His main task that morning was to introduce Professor Matthew, who was to speak on 'The significance of information in present-day industrial society'. He would like, however, to underline the importance of the subject as he had seen it from a number of different angles during his life. His early work had been concerned with plain, straightforward organization, in the setting up of the Employment Exchanges and of Unemployment Insurance, the first Food Ministry, and the like, with a very brief experience of a war in which no one ever seemed to know what was going on anywhere else. After the war, the Empire Marketing Board combined, on the one hand, scientific research, on the other some early stages in the development of Government information and publicity. Later, he had experience, first in the Post Office and then in the B.B.C., more specifically directed to public relations and information; and now, in his retirement, he found himself in touch, on the one hand, with certain big industries, and on the other, with some quite small businesses.

One thread, as he looked back, united for him those various experiences, and that was the vital importance of information in every job which he had had to do and in every sphere with which he had been concerned, and the exacting nature of the work of those who had to provide that information.

There had been a great revolution in this sphere even during his own lifetime. To-day ideas had become not only the most potent of forces but also the most precious of cargoes, and the media through which information could be conveyed had been multiplied. He had seen the beginning of films, the beginning of aeroplanes—and, for that matter, of motor cars—and the beginning first of broadcasting and now of television. Those had between them made wholly new instruments available for the

conveyance of information. The reasons for the revolution he would not attempt to analyse, but among the most important elements were the great growth of scientific research and the need for conveying the results of scientific research to those who could apply them.

All these new media required exploration. This business of information was important in the international sphere; the Charter of Unesco declared that, since wars began in the minds of men, it was in the minds of men that the defences of peace must be constructed. It was seen, also, at quite humble levels, in the dealings, for example, between a quarter of a million postmen all over the country and the public. In between, it came into the industrial field in regard to such questions as exploring and testing markets, securing efficiency in production, and securing the goodwill of a labour force and the understanding by the humblest worker of the job that he was doing.

Sometimes there was an opportunity for a particular instrument to be used in two ways. To give an example, films had been made for the Post Office illustrating the telephone service. Sir Kingsley Wood had been very anxious that this should be done with a view to boosting that service; but Sir Stephen had often thought that the most potent effect which those films had had—they were publicly shown, and were among the most distinguished of the early documentaries—had been in giving a feeling to the Post Office staff that their work was understood and appreciated by the public, and, incidentally, in showing them what their small part in the process of conducting a national and international telephone service meant against the background of the full organization.

Professor Matthew held at the moment the unique Chair of its kind in this country. He had had experience first of all in the works, mixed with scholastic experience at Cambridge. He had had experience on the subject with which he was to deal as a consultant in South Africa. During the last war his help had been enlisted by the Government there, and from 1939 to 1945 he had been technical adviser on war supplies and chemical defence factories in that country. Since then he had been engaged nearer home on industrial and municipal investigations, and in a few months' time he was going, at the invitation of the Government of India, to that country for two months to advise them. He spoke, therefore, with unique experience, in addition to holding a unique position in the academic or applied academic world of this country. The Conference was fortunate in having him to read the first paper.

PROFESSOR T. U. MATTHEW, in presenting his paper, said that he regarded it as a great honour to address the Conference. He did so, not as one who had been concerned, as Sir Stephen had been, with the dissemination of knowledge in a wide and interesting range of fields, but as one who, as an engineer, had been concerned with the finding of knowledge and its application in industry. It was from the aspect of the significance of information from its user aspect that he wished to put forward some ideas.

When referring to the recent progress made in the provision of new information services he expressed his pleasure at the appointment by Aslib of a full-time adviser to industry, who would carry the knowledge of how to use information right into the heart of the fortress. Professor Matthew wished this officer well in his new task, which was a most important one.

At the end of his paper he said that in his opinion, and from his experience, it was the personal contact which was developed as a result of the experimental approach and type of initiative referred to in the last few paragraphs of the paper which was of the greatest value. Unless the people concerned with the dissemination and use of information could get into direct personal touch with an increasing range of managers, and especially technical managers, who are in a position to introduce new methods and new ideas, much of the information would remain in the library unused, and that would not help our industrial society to progress, as it must do for our economic survival.

Discussion

MR. JASON E. L. FARRADANE (Scientific Information Officer, Tate & Lyle Research Laboratories) said that Professor Matthew had rightly pointed out the growing value of information services, and the fact that this was a new function which was going to be of

MATTHEW : THE SIGNIFICANCE OF INFORMATION

value to industry and of which industry had to take advantage, but he had pictured this in terms of making contact with sources of information on the one hand, and on the other hand teaching engineers and managers to be their own information-gatherers. Professor Matthew, Mr. Farradane suggested, had missed the point there, because if information was going to be important the people who were supplying the information were going to be even more important.

The trouble was that the profession of information officer had not yet crystallized out. It was in process of crystallization, however, and it should be a function of industry to help it to do so, so as to get the best results in obtaining information. Aslib was still at a half-way stage towards defining this profession and making the whole business of gathering information really effective by emphasizing the value of the information officer. Whether it was a question of market research or of technical information did not matter, because the principles were the same.

At present there was far too much vagueness about the capacities and capabilities needed by an information officer, and his status must be raised until it became obvious to industry that if it wanted information it must start off with an information unit of its own, even if it consisted only of a single information officer. Until, however, industry knew what an information officer was as such, and did not look on him as a chemist pushed into the library, or as a librarian told to look up a few more things, no progress would be made. The first step was to define what an information officer could do and be, not necessarily what he was now, and to put it on a very high level indeed.

Aslib was the body which must foster that development and put it into practice, and this year provided an excellent opportunity, with the growing demand for information throughout industry, to make a start with that definition. Subsequently, with industry's help, they could make a start with the future training and development of the special information officer's functions in all directions

Mr. E. N. SIMONS (Information Officer and Publicity Manager, Edgar Allen & Co., Ltd.) followed up the remarks of the previous speaker by taking the subject a stage further back. Most of those, he said, who had had experience, at any rate twenty years ago, of trying to get the idea of an information officer and information service into the heads of directors of large firms would realize that the real trouble had been in the past, and to some extent remained at present, the absence of any conception in the minds of business directors that information was necessary. Although Aslib might decide what were the functions and what was the status of an information officer, not much would be achieved until there was a ready reception at the top of the concept on which information officers and their services were founded.

There was a tendency in industry to-day for directors not to be just promoted sales managers or salesmen, as had often been the case in the past, but to be regarded as specialists with functions clearly defined for which they were trained. It should be the key-note of the policy to be adopted, if it was to be a success, that in the training of both technical and commercial men emphasis should be put on the necessity of scientific information, widely distributed and sensibly employed. It was necessary to go right back to the training of the men at the top before the status of the information officer would be recognized.

Dr. D. J. URQUHART (Department of Scientific and Industrial Research) found himself in slight disagreement with the last two speakers. The real trouble, he suggested, was that possibly information officers in large industrial corporations had been far too successful. The large industrial corporations of this country were embarrassed by the number of ideas awaiting development which they had not the capital to develop. The phenomenon of ideas queuing up for development was not peculiar to this country ; it happened also, he understood, in the United States. It was commonly found with large corporations.

These large corporations usually ran research departments. Professor Matthew had considered another category of organization, the organization which was a member of its research association but did not have its own research department. There was,

however, a third category, the not very progressive small firm which was not a member of a research association. Perhaps three-quarters of the firms in this country were in that category. They did not, of course, have information officers, and had never even heard of the idea. Some thought should be given to the question of how these ideas were to penetrate to them.

In a survey carried out by the D.S.I.R. it was found that two-thirds of the industrial organizations in this country said that there was no one on their staffs advising them on scientific and technical matters.

Not all information, however, required capital to make use of it, and if information officers were to devote their attention to sorting out information into that needing capital development, which in many organizations was just useless at the moment, and that which did not need capital development, they might establish their position a little higher.

He agreed with Professor Matthew on the importance of industry obtaining scientists and technologists. They were certainly needed, and the Government had decided to set up a new Technological University; but the foundation stone of that university had not even yet been laid. It was not possible to wait. Somehow it was necessary to reach the people who did not have any scientific or technological training, and one of the curious functions which would have to be developed in information services was the art of translating technological information, often written by scientists who prided themselves that nobody could understand what they had written, into something simple which could be understood by those who could apply it if they could understand it.

MR. VERNON D. FREEDLAND (Information Officer, British Hat and Allied Felt-makers Research Association) continuing with the theme of getting information into the hands of the small industrialist, said that, as Dr. Urquhart had mentioned, the greater part of industry in this country consisted of small firms, people who, very often, had no real technical or scientific knowledge, industries which had developed at the bench. In trying to put information into the hands of such people, Mr. Freedland was often faced with a solid brick wall.

A recent experience of his was evidence of this. His own research association issued, as others did, a bulletin containing information about the work which they were doing, and abstracts and lists of available publications. A short time ago information was given in that bulletin of translations which were being made which were of special interest to certain firms, and it was well advertised that they would forward this translation on request, the object being to assess the demand rather than send it out wholesale. The other day he had a telephone message from a firm who said that they had seen in a trade journal that this translation was available, and could they have it. The trade journal had been allowed to reprint the précis from the bulletin, and this firm had not taken the trouble to look through the bulletin, but found the notice at second-hand in a trade paper.

MR. C. W. HANSON (Information Officer, British Scientific Instrument Research Association) said that the point which Mr. Freedland had just raised was closely linked with something that he had felt all through the reading of Professor Matthew's paper, and tended to confirm his belief that information officers were perhaps partially failing in their job, not so much by failure to get information into the hands of the people whom they served as by failure to get it into their hands at the moment at which they were prepared to receive and to act upon it.

Two specific examples which he knew reasonably well, and which Professor Matthew would know, were the lost wax casting process and the process of electrolytic polishing. Both those processes had been fairly well known for much more than a decade, and his association had brought them to the attention of their members on many occasions and in many ways as possibly well suited to meet some of their problems. In spite of doing that, members of the association came to him and said, 'I heard something the other day about some process of electrolytic polishing: do you know anything about it?' He had at last learned that he could not reply, 'I have been giving you this informa-

MATTHEW : THE SIGNIFICANCE OF INFORMATION

tion nearly every month for the last five years', because he had not really given it to him ; he had not given it to him at the time at which he needed it.

It was necessary to think seriously about that aspect of the problem and either develop new techniques of repetition or alternatively, perhaps, develop techniques of advertising and presenting material in a more forceful way ; because, as Professor Matthew had said, all too often it was only seeing the final product in an immediately useful form at an exhibition which brought home to people the possibilities of using the information which they had seen, but which had left no mark at the time.

Mr. B. AGARD EVANS (Chief Librarian, Ministry of Works), supporting what Mr. Hanson had said, expressed the belief that the presentation of information was one of the fundamental failings of their profession. They had been influenced too much by the traditional library types who felt that everything was answered by handing out a bibliography of 144 or, better still, 168 references. The average busy man, whether a technical man or a manager, could not be bothered to look through that sort of document.

Personally, he had not solved the problem of how to put the information out in a more attractive form, but he was positive that individual feeding was necessary, and the use of diagrams and, where possible, models and so on. In the Ministry of Works they had tackled the problem which Dr. Urquhart raised of getting the information over to people who were, from a technical point of view, illiterate, and they had been partially successful with a series of advisory leaflets. The idea had been first of all to write them down to the craftsman and foreman level, and they had been helped by what the Treasury called 'information officers', who were journalist types and who put the whole thing in such simple language that they left out all the technical terms, the only thing that the foremen and craftsmen could understand. Little by little, however, those pamphlets had been improved, and they were now nearer to the sort of document which could be picked up and understood almost at a glance.

The information which the information officer provided for his own manager or technologists ought to be presented in some such ready form. 'Put it on half a sheet of notepaper' was the demand which was often made, but it might be difficult to carry out.

MISS M. P. TENCH (Librarian, Radiochemical Centre, Ministry of Supply) suggested that the solution of the problem in a small organization was for the information officer to go round and find out the questions to which he was likely to have to supply an answer. She was fortunate, she said, in being a member of a fairly small organization, and by a short visit to the laboratory it was almost always possible to find out what the problems were, and then go back to the library and find the answer to them in perhaps half an hour. She appreciated, however, that in a big organization it was impossible to visit the member firms, go round their works and find out their problems. Perhaps if there were liaison officers in the member firms who would co-operate it would be found possible to provide an answer to the problem.

Mr. A. H. RAINE (Information Officer, Brotherton & Co., Ltd.) said that some time ago he had made the suggestion that small firms who needed to make use of research, but who in many cases could not afford to set up a research department, might find that to a large extent their need could be met by setting up a library and information service. The cost would be quite small compared with that of a research department.

In connection with the difficulty of putting the case and reporting to executives and managers, in his department they did not deny them access to a detailed report, complete with the 168 references which had been mentioned, but when they did that the first page of the report consisted of a summary of the report in very simple terms, saying what had been done and found, and what it was recommended should be done next. This seemed to meet the requirements of his own organization.

PROFESSOR MATTHEW, replying to the discussion so far as it had gone, took up the point raised by Mr. Farradane by referring back to what was actually suggested in the paper. The proposals he had made in the paper were really aimed at the members of the

British Institute of Management. He thought that the B.I.M. should examine and publicize the idea that management should now advance beyond the advice which Henri Fayol gave in France fifty years ago and adopt the idea that a new seventh function of management was now necessary, namely the information function.

How did individual management set about establishing that function? He had suggested, first of all, that the top executive 'has to take the definite step of charging a senior executive with the responsibility for reviewing and reporting upon and maintaining the essential key information services required by the organization at all levels'. He knew quite a number of large companies who had no information officer at all, simply because they had never faced the need for this function. It was only after that point had been reached that his second point arose, 'to seek for means of educating and training his existing staff to make use of the information services provided'. Latent in the first point, therefore, was the answer for which Mr. Farnadane was looking.

He believed that in most companies, right down to those of small size, an information officer was certainly justified, but it was rather a long story to try to justify such an appointment. Being of service to the other functions of management meant that the results were not always obvious, and there was some difficulty in justifying to top management, and financial management in particular, expenditure on this new function.

He could not agree, however, with the idea of starting with the building up of the definition of the information officer. His feeling was that management would only come to appreciate the value of an information service by attempting to find information for themselves, and that this was the educational method which must be adopted. They had tried it out at their summer school in Birmingham this year. This summer school was held every year and lasted a fortnight, and was attended by some thirty-five works managers and production engineers. This year they had a specialist group on the use of information, and these men, though most of them came from large companies which had research departments and information officers, were staggered when they themselves went through the drill of checking over possible sources of information on particular problems, to find the wealth of information services which exist in this country. Secondly, although they were people of graduate status they were fascinated to find such interesting publications as the *Engineering index*, of which they had never heard. It must be recognized that the great bulk of engineering graduates from the universities of this country had never heard of that publication because it was not considered to be a part of university curricula to teach people at the undergraduate level how to look for information; it was only when they came to the graduate level that they delved in libraries and looked for original information.

It was only by bringing people in the individual company to appreciate the value of information by getting them, in some way or other, involved in the situation in which the information officer was the expert, that they could be brought to realize from personal experience the value of this function. Until they came to see that, it would not be possible to penetrate their minds.

He suggested that information officers would make a mistake if they insisted that the provision of information was a highly expert matter. The 'open book' policy was desirable in the information field; people should see exactly the route which was used by the information officer in all its complexity to find the answer to the problem. When they saw how complex that route could be, they would realize how important the information officer was. If he came along with the answer and merely said 'It took me only two days to find that', they would say, 'What do you mean, two days? Did you not just look it up in a book?'

He felt that the training of the men at the very top was most important, and then the training of the key staff—the designer, the production engineer, the works manager and possibly some of the sales staff. There should be part-time training of these men, not to make them experts, but to get them to go through the routine of finding out the difficulties which had to be solved in getting information. Such a training should open their eyes and create a demand in the organization for the appointment of someone as an information officer.

MATTHEW : THE SIGNIFICANCE OF INFORMATION

He could not agree with Dr. Urquhart that information officers had been too successful. He did, however, like the suggestion, which was applied in the field of work study, that the different levels at which innovations could be introduced should be divided into categories as long term, requiring capital ; intermediate term, requiring little capital but some development work ; and short term, i.e. new ideas and changes of method which could be brought in, coming right down to detailed motion study, involving no capital but tending to increase operating effectiveness. A wealth of information was coming in at all those levels, and, if the information officer found that he had already filled up the agenda for long-term problems, he should switch his interests to the short-term approach and start getting out information and literature on work and motion study. That was a very good point to make.

He was very glad that Dr. Urquhart emphasized that it was not possible to wait for the development of this Technological University. There was a need now to develop means for translating the results of scientific research into an assimilable form, and that job was the more difficult because there were not the technologists to do the translation, that was one of the functions of the technologist.

Mr. Freedland had underlined the point made in the paper about trade journals. A study had been made by a colleague of Professor Matthew's in Sweden, Professor Carlson, who had done some work studies on the top executives of companies, sitting in a corner of their office and noting how many telephone calls they had, how many interviews they had, how many documents they read, how often they were interrupted, and so on, over quite a long working period. How he had managed to get into a situation where he was able to observe the top executives it was difficult to know, but his work was useful, because he found that they were doing junior work for at least half their time without realizing it, and the really effective, thinking part of their work was being neglected as a result. So far as reading was concerned the top executive usually had a routine. He read certain documents which he had become accustomed to read, and if it so happened that the report of a research association did not come into that category it was ignored, but the trade journal, which did come into that category, was read. Professor Matthew admired the attitude of Mr. Freedland's research association in allowing a trade journal to quote fully from their bulletin, because that covered the situation both ways. The 'open book' policy was the right one.

Mr. Hanson's point about timing was most valuable. The job of the people with whose training Professor Matthew was concerned, the production engineers or industrial engineers, was really to find out the new developments which ought to be introduced at a particular time and then to go to infinite pains to present the particular innovation which they felt to be essential in such a way that the logic of it was inescapable and it would be implemented. The information officer had to some extent to take the same point of view as the production engineer in this respect, and Mr. Hanson's emphasis on timing and presentation and advertisement of the idea was exactly in line with Professor Matthew's own thinking on the matter.

Mr. Agard Evans reinforced that point of view. Some excellent pamphlets had been produced by the Ministry of Works, such as *Costing for builders*, which had been very effectively used in the building trade.

Miss Tench suggested that the information officer should go round and find out the questions for himself. That, of course, was possible only in the small organization.

What seemed to come out of that contribution was the fact that the information officer needed some part-time training in all the other functions. That was an important thought. If the information officer was to assess the needs of the organization he must somehow systematically ascertain, and train himself or be trained in order to be able to ascertain, just what the needs of the different departments really were.

Mr. JASON FARRADANE thought that Professor Matthew had misunderstood his opening remarks a little. He agreed that it was necessary first of all to teach industry the need for information, and that executives had to go through the mill and find out that they needed it before they knew that they needed an information officer ; but he had assumed that there was already a sufficient nucleus, although perhaps a small one, of enlightened or semi-enlightened firms who were fully conscious of the need for

information but not yet fully conscious of the means of getting it. He thought that the work of the information officer should be defined to show industry what was possible.

The point raised by Mr. Hanson about getting the right information at the right time to the right people was bound up with the status of the information officer, which must be high enough—next, in his own sphere, to the research director or managing director—for him to be fully in touch with what production, management and research wanted at any given moment. The status was not high enough at present for him to do that job.

Mr. E. G. BRISCH, referring to the technique of providing the information, said that one difficulty often was that it could not be found quickly enough. Conscientious information officers often felt frustrated because the information which they had collected was not easily accessible and could not be produced the moment that it was wanted. More attention should be paid to the technique of supplying information.

On another point, he felt that there were only three main aspects of management and not six, the three being the technical, the administrative, and the sales aspects. The provision of information, however important, could not, in his opinion, be considered to be on the same level as those three. First things should come first—evolving fool-proof methods of getting information quickly, and getting all the information which was available.

Mr. A. H. RAINE, speaking a second time, said that in Professor Matthew's reply there had been a little aside which was extremely valuable, referring to the part-time training of information officers and that they should go about and see things for themselves. That had been, ever since its foundation, one of the activities of the Northern Branch of Aslib; whenever they had a conference they tried to arrange, along with it, a visit to some works or other, and on those occasions he had met many, perhaps rather junior, members of information services who had very wisely been sent by their chiefs. They might be accustomed to give all sorts of information about what went on in such works, but it was a complete eye-opener to them to visit the actual works and see the pumps going and the sparks flying and the cranes lifting material, and they returned from such visits much more enlightened. Ways and means should be found to do more of that. It was something on which the members of the Northern Branch were inclined to pride themselves.

Dr. D. J. URQUHART (Department of Scientific and Industrial Research) said that Professor Matthew had prepared courses about information services for production engineers, but, arising out of what Mr. Raine had just said, did he think that there ought to be courses on production engineering for information officers?

Miss BARBARA KYLE (Royal Institute of International Affairs) said she was not a scientist and did not always understand what scientists wrote, but, since hearing Professor Matthew mention that D.D.T. lay dormant from 1874 to 1939, she had found it difficult to listen to anything else, because she had been worrying so much about it; it seemed a terrible thing to happen. Could he say why that happened? Was it a failure of information services? It would be interesting to know whether a good information service might have made D.D.T. available in 1875.

Professor MATTHEW, in reply, dealt first with the point raised by Miss Kyle, which he, too, found fascinating. There were in the world, he said, great schools of organic chemistry in which large numbers of people were developing all the possible permutations and combinations of organic linkages on every conceivable type of material, simply from the point of view of their organizational structure—'Can this be synthesized or not?' 'Can this be isolated or not?'—without any reference to a possible end use. That was more or less the characteristic of fundamental research: the search for knowledge for its own sake.

MATTHEW : THE SIGNIFICANCE OF INFORMATION

That had happened with D.D.T. The original research project had been concerned with a certain type of condensation reaction, and this had been tried out with a large number of substances, of which D.D.T. was one end product, by a German chemist. Having noted the conditions under which the reaction occurred a little bottle of this sweet-smelling stuff was lodged away and its description was faithfully recorded in *Beilstein*. In the same publication there were still to be found countless compounds which had never been tested for anything.

The case of penicillin was another example. During the war he had been asked to find a post-war use for certain production resources, and someone drew his attention to 'something new coming out in anti-biotics, named penicillin'. The question was whether it would fit into the new scheme. He at once went to the library and got out Thom's book, *The Penicillia*. From this it became clear that there might be some 200,000 different species and strains of the penicillia. Of those 200,000, there were only three for which a use had been found so far. There was an agenda for research action! There were now people engaged in biological chemistry who were systematically studying those 200,000 varieties. When they would get through them he did not know, and that was, of course, only one little corner of the whole field of biological chemistry.

On the question of whether D.D.T. might have been recognized for use as an insecticide in 1875, that could have happened accidentally, but not through any information service. There would have had to be an organizational set-up to do what the Swiss Geigy Company did in 1939, when they looked in a systematic way for organic compounds which had an unusual odour, with the idea of finding a moth repellent. In this search *Beilstein* led them to D.D.T., which was found to be highly useful and effective in killing the louse and the mosquito as well as the moth.

In reply to Dr. Urquhart, he thought that there was scope for some kind of part-time training for information officers in engineering production. He believed that there was a need for cross-fertilization between different branches of science and different functions of management, and that was what he had been trying to effect by his summer schools, at which the production engineer and the manager obtained some insight into the information service side.

With regard to Mr. Raine's remarks, the Northern Branch of Aslib had done a very useful service by arranging works visits, and that might well be done in the Midland Branch, of which he had the honour to be Chairman. He would discuss the matter with his colleagues at the next opportunity. It was current practice to visit other organizations, but he welcomed the idea of going right into the works.

Mr. Brisch's point about the technique of getting information was most important. Professor Matthew did not want to enter into an argument on the functions of management with Mr. Brisch, but the importance of so engineering the provision of information that it was possible to put one's finger on all the information quickly and effectively, and to be sure of having all the relevant information, could not be over-estimated. It might be of value to study the librarian and information officer in the same way that the top executive had been studied in Sweden, with the object of cutting down the routine work and increasing the time for the thinking part of the work. If that could be done, the status of the information officer would be automatically increased. It was no use starting by stipulating a status; the status of the information officer would grow with the service rendered.

THE CHAIRMAN thanked Professor Matthew for his paper and thanked all those who had contributed to the discussion. Being what Mr. Agard Evans called 'the journalist type', he was reinforced in his conclusion that a revolution was going on in the world of information, and that there was still a great deal to be done by those concerned with information in educating their masters.

INFORMATION SERVICES IN PUBLIC LIBRARIES

BY ROBERT L. COLLISON, F.L.A.

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"THE printed word is neither more nor less than the judgment of a specialist in printed form. Our files and our libraries are really vast collections of expert opinions in formal, recorded form." These words of Dr. Ralph R. Shaw, the Librarian of the United States Department of Agriculture, illustrate effectively the work and aims of the public reference library which is, in fact, the living encyclopædia of its area. Its purpose is clearly the maintenance of whatever is available of the most up-to-date information on each subject.

This is no easy task, and public reference libraries have had varying degrees of success in this work at different periods. Most of these libraries have at one time or another started schemes of recording information which have eventually proved too ambitious for their resources and for the severely limited numbers of their staffs. Many of them have shown great strengths in some subjects, and remarkable weaknesses in others. The stage has not yet been reached when it is possible for a traveller confidently to expect the same degree of services from libraries in different towns of roughly the same size, in the same way in which he can expect certain postal and telegraph or other public facilities. But certain great provincial public reference libraries have long set an inspiring example and have trained many of the members of the staffs now engaged in reference work, and there has been a marked improvement in reference library work throughout the nation during the past twenty years. What now is required is a clear idea on the part of librarians and of the nation as a whole concerning the services which the average public reference library can reasonably be expected to provide. And by defining the library's abilities and limitations in this respect, it is possible to ascertain how far it fits in with the general pattern of other library and information services in the immediate area.

A few years ago probably the most extensive, and exhaustive enquiry ever made into the workings of a single public library was held at Los Angeles, where that great city was the subject of the careful scrutiny of several independent experts under the guidance of Dr. Lowell Martin. The resulting twelve large volumes of reports make fascinating reading and provide an excellent model for any future library enquiries. In the case of the reference library the investigators pointed out that within a few miles there were two great university libraries and a large number of important special libraries covering between them a surprisingly large field of subjects. In these circumstances the committee felt that the public reference library should not attempt to duplicate in detail the collections or the work of these other libraries, and that it should instead husband its resources so that it might more fully cover those subjects which lacked comprehensive coverage in any of the nearby libraries. At this

point it must, however, be noted that the resources of the university and special libraries in the United States are generally more easily accessible to the members of the public than are those of their counterparts in Great Britain.

One of the consultants' recommendations was, in fact, that the public library should curtail its extensive bibliographical services. Fortunately this particular suggestion was not accepted. In any library the bibliographical service is a fundamental part of its work with readers and is hardly one which can be left to the goodwill of other libraries to carry out on its behalf.

But the important lesson of these remarkable reports is that the work of the public library cannot be considered on its own if a true picture is to be obtained—it must be examined in relation to the work of *all* the other library services in the area, and its policy must be determined in relation to what is elsewhere available. In this, restrictions such as time and membership, of course, play an important part: for instance, even the best of libraries on chemical engineering is practically useless to the man in the street if it is only open at times when he is not normally free to make use of it. Again, if the use of a special library is severely restricted to members of its own organization, the local public library is thereby forced to ignore its resources for the most part when it is planning its own coverage and work.

One of the most interesting examples of the possibilities of practical co-operation between the public library and neighbouring special libraries is that of Chicago, where the Central Reference Library, the Newberry Library and the John Crerar Library are fortunately situated very near to each other. The work of the John Crerar Library in the fields of science, technology and medicine, etc., is well known; the rich resources of the Newberry Library in many branches of the humanities are world-famous. These libraries, together with the Chicago Public Library, have agreed to define their fields of specialization to avoid unnecessary duplication and to make their funds go further in the purchase of additional material, while at the same time valuable economies in shelf space and staff time are effected. In the subject-fields of the John Crerar and the Newberry, the Chicago Public Library will probably buy books for its circulation departments where they are needed, but will not always add them to its reference collections. In the case of the John Crerar, co-operation is particularly easy, since the two libraries are only separated by the breadth of a street, and liaison is maintained by a weekly visit of the John Crerar's reference librarian to the public library's acquisitions department. It should here be emphasized that all three libraries are open to the public, although two of them are maintained by private foundations.

Similarly, in Britain we have the twenty-year-old Sheffield scheme in which the thirty member libraries not only lend material to each other, but record their joint holdings in the science and technology department of the Central Public Library. This is a very fine example of the way in which the public reference library of a great city can play its part as the

COLLISON : INFORMATION IN PUBLIC LIBRARIES

focal point for the societies, the industries and the commerce of its area, and can substantially contribute to the efficiency and economy of their library services as a whole.

In New York, some organizations maintain small branch offices close to the public library for the use of their research staffs, who are thus able to make the fullest use of that library's unrivalled collections and to provide their head offices with information without delay. A variation on this system is seen at the John Crerar, in Chicago, where the Research Information Service has been in operation since 1947. This was established for the use of industrial concerns. Six assistants, each an expert in his own field, are employed to carry out research into the library's materials on behalf of organizations which are willing to pay the cost of their work. This has been calculated on a cost-accounting basis, and does not include general library overheads, the fee working out at slightly more than 36s. per hour. More than three hundred research projects have already been completed—one of the first was the preparation of abstracts of approximately seven thousand, five hundred articles for the United States Atomic Energy Commission for publication in *Nuclear Science Abstracts*. A regular monthly project for the past fourteen months has been the preparation and publication of a journal of abstracts on aluminium for the Reynolds Metal Company. This department also does translations of technical articles, but limits its work to materials in the library's stock. It is doubtful whether the law under which English public libraries are established would allow for similar services in Great Britain, and the pattern of development here is more likely to be on the lines of that operating in New York with, perhaps, an independent research service undertaking work for several organizations.

The information services which the medium and large public reference libraries can provide are wider in scope than is generally realized. In the first place, their stocks—whatever their size—are substantially supplemented by the vast amount of material contained in the circulation departments and their reserve stocks. For example, in the case of Westminster, although the Central Reference Library has less than one hundred thousand volumes, the total stock on which it can draw within its own system is nearly half-a-million books (housed in branch libraries conveniently near), of which very little could be classified in an ephemeral category. Moreover, this great reserve of the outstanding non-fiction works of the past century and beyond is subject to frequent scrutiny and revision by experienced staff.

In addition to their book stocks most public libraries carry a wide range of serials, and although many of these are usually of the general and non-specialist variety, these very factors make them of considerable value to most special libraries which can afford little space for files outside their own subject range. Moreover, it is the articles in these general periodicals which are made most widely available through the published indexes and which are most widely known through frequent public allusions, so that the special library can rely on the public library to supplement its material, especially in the border subjects to which it has

not been able to give the same comprehensive treatment which it has awarded to its main fields. In areas where special and public libraries are really co-operating, their librarians are becoming increasingly aware of these facts and are finding that they are able to devote more of their funds to the subjects in which they specialize, while at the same time they achieve valuable economy in shelf space by avoiding unnecessary and wasteful duplication.

It would be easy to select the best examples of public reference libraries and to list the immense range of information services which they provide, that are of definite value to special libraries. It is more useful, however, to detail the services which can confidently be expected of an average public reference library in a medium-sized town. There are, in fact, certain subjects in which public libraries, by their very nature, are traditionally strong, and of these the interest in local affairs naturally ranks high. Nearly all public libraries have large collections of material—books, periodicals, maps, plans, illustrations, clippings, and other items—relating not only to local history and antiquities (including many valuable contributions to questions relating to land ownership, boundaries, natural resources, and trade history), but also to local industries and commerce. In addition, most public libraries maintain information files relating to local organizations, customs, experts in various subjects, contacts on special points, unusual and rare items of local knowledge, and very often the chief librarian is himself an expert on local history. In many cases these local collections extend well beyond the boundaries of the town and include material relating to a substantial part or even the whole of the county as well; as, for example, Colchester, where the public library has one of the finest collections of material in existence on Essex, or Exeter, where the City Library has an unrivalled collection on both Devon and Cornwall. Two further examples will immediately spring to the minds of those who have had the good fortune to examine the published catalogues of the great Gloucestershire or the Birmingham collections. For those special libraries situate far from any town, it should be remembered that the county libraries—though more recently established than the municipal systems—have already built up vast files of material on the county as a whole and on many specific areas, and have sometimes published extensive catalogues of their collections. As many special librarians have discovered, whatever the subject of their library, sooner or later questions involving local information have arisen which can only be answered by means of the indexes which individual public libraries have laboriously compiled to the columns of the local newspapers and other out-of-the-way items.

Perhaps owing to their close association with local administration, most public libraries have also built up considerable collections of material on local government, a complex subject which embraces so many fields of enquiry nowadays, and one in which few special libraries can afford to venture very far. But the public library is usually even stronger in the field of Government publications: in Britain these documents are, of course, cheap enough, but there are very few institu-

COLLISON : INFORMATION IN PUBLIC LIBRARIES

tions apart from the public libraries which can provide the space, time and staff with which to house, control and list the innumerable items on innumerable subjects issued by Her Majesty's Stationery Office every year. Government publications are, in fact, a special study in themselves, and one which many public libraries have mastered exceedingly well : it may also be remembered that some of the older and larger of the provincial public libraries have been repositories for Government documents for many years past and are probably the only nearby sources for many of the older and more important items.

Law, too, is a subject on which many public libraries have quite large collections : not only do they have the Statutes and the Statutory Instruments, but also the outstanding works on most of the main branches of the law in Britain. This is a subject which affects everyone, but law books are expensive and their replacement by frequent new editions is not one which most special libraries would lightly undertake outside of the subjects of immediate concern to them.

One of the great advantages of British public libraries is that the great majority of them have been in existence for many years, and some for close on a century. In the old days it was an almost universal fashion for public libraries to subscribe to the transactions and proceedings of learned and technical societies and associations. Even in quite small libraries, therefore, it is not uncommon to find long and unbroken sets of what are now valuable and very often otherwise unobtainable publications of these bodies, complete with cumulative indexes, supplementary volumes, and other rare items. There are also the long files of national and local newspapers which were cheap enough at the time of publication, but which now rarely or never appear on the market. It is to the credit of such libraries as Wrexham that these local papers are now being permanently recorded on microfilm.

Another speciality in most public libraries is the provision of dictionaries of foreign languages. It is uneconomical of space and money for the special library to keep dictionaries for the occasional letter in Finnish or Tamil, and yet the public library is probably the only accessible source in many areas for adequate dictionaries in any but the most usual languages. In most public libraries there is not the space to display the great range of dictionaries which they possess—and to which they are constantly adding—and the special library might do well to examine and note the local public library's holdings in this field before embarking on any large-scale purchases of its own. This consideration also applies to directories and annuals which public libraries have traditionally featured, and of which many of them maintain long files of back issues. An area can never have too many of these topical and relatively expensive works, so that a co-operative scheme of purchase would certainly repay the libraries of any locality.

One of the great difficulties of many special libraries—especially those established within recent years—is the identification of publications. Ascertaining details of author, title or publication in the case of the rarer items—and it is the rarer material with which the special library

deals daily—may prove unexpectedly difficult, particularly if the publications concerned are fairly old. Here the public libraries can give very good help, for most of them are more than fifty years old and have carefully amassed long sets of bibliographies and trade catalogues and indexes from which they stand a very good chance of unearthing the information required. With the best will in the world—even if it is accompanied by a large fund for books—it is not possible to build up overnight a comprehensive bibliographical section, for most of the items in this field had very limited editions, of which the greater part has been permanently absorbed by the long-established libraries in Britain and America, so that the newly-created library is at a disadvantage and can only hope to acquire important items of this kind at long intervals. Nor should the public library's own catalogue be overlooked as a bibliographical tool: much work has been put into it, and it may be better equipped with cross-references, added and analytical entries, and other adjuncts than many bibliographies. A glance at the published catalogues of such libraries as Glasgow and Liverpool will confirm this point.

And lastly, owing to the system of training long in vogue in British public libraries, most of them have good collections of books and periodicals on librarianship, which can be of great help in providing special libraries with statistics, illustrations, examples, etc., in preparing schemes for buildings, extensions, development of services, design of furniture, and all the numerous minutiae of everyday routine on which too much time can be spent if the past experience of other librarians is not first consulted.

These are the basic services which one can reasonably expect to find in the reference library of any medium-sized town or in the enquiry service or research section of any county library headquarters. They are regarded as so ordinary by many public libraries that no attempt is made to emphasize or publicize them: they are taken for granted by most of the local inhabitants, but may sometimes be overlooked by the special library in the pressure of its work. In the larger reference libraries there is, of course, very much more available, and among these services it should be noted that the following are usually provided.

First of all, maps and atlases in great profusion are the stock-in-trade of any well-organized reference library, and they will include large-scale maps for the country for many miles around, and complete sets of the main issues of ordnance survey maps for the entire country. In addition, there will be the major maps and atlases for the more important foreign countries, and special atlases—administrative, geological, historical, etc.—wherever they are available, together with extensive world and individual country gazetteers. The value of these to any special library whose organization has considerable foreign trade or contacts cannot be over-estimated. In addition to these, most good reference libraries make a point of collecting specialist maps of Great Britain—geological, land utilization, commodities, natural resources, etc.—and those relating to communications and navigation. A glance at the periodical lists of additions in this field to the library of the Royal Geographical Society

COLLISON : INFORMATION IN PUBLIC LIBRARIES

will show how great this field alone can be, and demonstrates how few libraries outside the great public and university libraries can hope to provide more than a token collection. Most of the large provincial reference libraries also maintain extensive collections of patents, of the Rolls series, and of State Papers—all items requiring much shelf space and constant care. In libraries with commercial and technical departments there are very often large files of trade catalogues and press clippings, company reports, loose-leaf services of commercial, legal and industrial information, commercial codes, guides to British and foreign towns, telephone directories for the principal countries of the world, and a hundred-and-one miscellaneous items which have been carefully collected in the effort to anticipate the very varied demands for information which can come at any moment of any day.

An interesting development in the modern reference library is the gradual acquisition of a number of special collections, some of them given, others bequeathed, and still others placed on permanent or temporary deposit by local societies and organizations who have agreed to their reference use by the general public in return for the expert care, cataloguing and administration given by the library. These collections are often comprehensive libraries of material on a particular subject or group of subjects, and are sometimes unrivalled in their field: the Special Collections Room in the Manchester Central Library, for example, has about one hundred different collections, ranging over an amazing variety of subjects. At Westminster, where this practice has only recently been commenced, there are already considerable collections of German and American literature, music and books on music, material on the women's movement, and small libraries on industrial catering and on the theatre. Such strengths as these are often unsuspected and are well worth investigating.

One could continue almost endlessly on this theme, but in order to be brief mention can only be made of the fact that many of these libraries have large collections of United Nations, League of Nations and European Economic Co-operation Organization publications, of foreign encyclopædias, statistics, formulas, shipping and tariff information; and that special departments may include large illustrations collections, music and art libraries, together with a photographic department where material may be quickly and inexpensively copied without formality.

The various schemes for stock specialization are fairly well known now. The earliest example, that of the Metropolitan Boroughs, took the form of a scheme in which each constituent library was awarded a subject field for specialization, the whole of the Dewey classification being divided between the twenty-nine library systems. Each library undertook to spend at least two hundred pounds a year on books and periodicals on the subjects allocated to it, over and above what it would normally spend out of its budget. In addition, libraries when withdrawing material were asked first to offer it to the appropriate libraries. Now that the scheme has been in operation for some time it is possible to estimate its worth: in spite of many difficulties it appears to be a success. The

public libraries of the central London area have worked well together and have built up very good collections in most instances—in many cases they have considerably exceeded the minimum amount of money which they were required to spend. Its degree of success may be judged by the fact that the surrounding libraries in the Home Counties have now instituted a similar scheme of their own in which they have been able to benefit from the larger number of libraries involved to make each library's subject allocation rather narrower and, therefore, easier to cover in a comprehensive fashion. Under the leadership of the Library Association larger and more ambitious schemes—resembling the Farmington Plan but rather wider in scope—involving the subject coverage of British and foreign material by a co-operative system embracing all types of libraries—university, special and public—have been closely studied and plans formulated and published. The national tendency is, in fact, towards a voluntary integration of library services of all types in an effort to provide the best service possible to all kinds of readers.

There are many ways of making use of a public reference library's information services. Letters are always welcome and, in many cases, elicit a more reasoned and detailed answer, although at the same time it may not be as speedy as that obtained by a more direct approach, since public libraries have little clerical help. In the case of telephone and personal enquiries the avoidance of the rush hours is not essential, but certainly advisable. Though it is difficult to generalize, most public reference libraries are busier in the evenings and at mid-day, so that enquiries received at these times are liable to be delayed until the rush is over. Special librarians who prefer to examine reserve material for themselves can very often obtain permanent permission to make use of the stackrooms and other non-public departments of the library for themselves or their staffs. Perhaps it is not as well known as it should be that public libraries do not restrict their work to their own area, and that an enquiry from outside their own locality—if it be such that it cannot be answered by the local library—is welcome. This applies especially in those cases where the enquiry is related to some special collection or special strength of a particular library. At the moment it is not easy for the special librarian—or, indeed, for any librarian—to discover exactly which libraries are the best on a particular subject, and it is to be hoped that the new edition of the *Aslib Directory* will not long be delayed.

There is one wider aspect of the information work of public libraries which is worthy of special consideration. The greatest public reference library in this country is the British Museum. In the United States it is the Library of Congress. The relative position of these two libraries in relation to the other libraries of their own countries is interesting and—to a Britisher—rather disturbing. In the United States the Library of Congress has established a leadership among the libraries of both North and South America, which is truly astonishing. Any librarian who has visited the United States will probably agree that nearly all the different types of libraries—federal, state, public, university, special—look to the Library of Congress and its librarian as a kind of father. This has been

COLLISON : INFORMATION IN PUBLIC LIBRARIES

achieved by an attention, on the part of the staff of the Library of Congress, to the needs of the American libraries which is quite without parallel. In the field of books, the Library of Congress pours out an endless stream of bibliographies, catalogues, reviews, recommendations, criticisms, and catalogue cards. In the field of serials, the Library of Congress publishes frequent and lengthy lists of new titles. On the technical side, the Library of Congress issues lists of subject headings, manuals, codes, and all kinds of material. On the personal side, the Library sends out its staff on assignments all over the country to advise and help, while the librarian—Dr. Luther Evans—is present at most major conferences and meetings, and is readily accessible to his many visitors. It would be true to say that no library scheme or policy of note in the United States is put into operation until the advice and assistance of the Library of Congress have been freely sought and most generously granted.

It does not detract in the slightest from the immense services of the British Museum to British librarianship to say that the British Museum has not achieved a parallel position in Europe. The Library of Congress has staff and finances on a scale which the British Museum has never enjoyed. ~~Given the staff and the money~~ the British Museum could probably parallel or even exceed the Library of Congress's achievement. British librarianship needs leadership and service of the type provided by the Library of Congress if it is to help maintain the standard of technological and scholarly advance at which British organizations constantly aim. A glance at the long list of publications of such departments of the Library of Congress as the Legislative Reference Service, the General Reference Division, or the Bibliographical Division, in any recent annual report of that library will demonstrate how much can be provided towards a national system of information by a library with a huge and well-administered stock. In the interests of the country as a whole, and in the interests of British libraries in particular, Aslib would be doing a memorable service in instituting a movement designed to increase the finances and staff of the greatest of all our public reference libraries.

Chairman's Remarks

MR. F. C. FRANCIS, M.A., F.S.A. (Keeper, Department of Printed Books, British Museum), who acted as Chairman of the second session, said that the theme of the Conference was very much in the minds of all those attending it. They were all completely convinced that knowledge was power, and that the great need behind all their work, whether it was scientific, industrial, commercial, or academic in the narrower sense of the word, was for information, and not only information, but information easily obtained and presented in the form desired.

That need was admitted, and indeed continuously proclaimed from the roof-tops, by the scientists, but it was not quite so clear whether the non-scientists, the humanists, knew whether they wanted it at all. It was probable that ultimately the need to use information in the sense in which the scientists used it would be felt in the field of the humanities, but it would be unfortunate to assume that the needs of all the different branches of learning were in this matter identical. Whether that was so would have to be learnt by experience, but it must be understood that different disciplines might need different treatment.

The subject was, as he had said, very much in their minds. It was at the basis of Aslib's activities, and one of his own hobby-horses. He could not bear to think of the

amount of information which, because their documentation was imperfect and their reference techniques were undeveloped, lay untapped in the different libraries. He felt that particularly, because his own library, the Library of the British Museum, which had a long history and was a very big one, suffered, perhaps, more than most libraries from the difficulty of adaptation to modern needs. Its adaptation was something which was in their minds, but which was by no means easy to accomplish.

One difficulty in dealing with the theory and practice of information service was that there was always a tendency to discuss it in rather vague and high-flown terms. That could be irritating, and a ha'porth of practice was worth a deal of talk. That was why they were particularly happy that evening to have the opportunity of listening to Mr. Collison. Mr. Collison's subject, 'Information services available at a Public Reference Library', was one with which he was particularly qualified to deal, being himself the reference librarian of what must be one of the busiest and most successful reference departments in any library in London, and probably in the whole country. He was not only a reference librarian, but the author of books which dealt with the technique of getting information across to the public. Moreover, he had recently returned from a visit to the United States, and no doubt his experiences there would have greatly quickened his approach to his own work and to the theory behind it.

It was also an advantage that he came from a public library. There was a growing realization that public libraries, the main job of which was generally conceived to be that of providing books for recreational and general instructive reading, could provide a very useful means of getting at first-line information. They had a number of advantages. In the first place, they were always at hand; there were public libraries in most towns and in many other communities. They were easy to get at, and, what was also important, their use as a rule involved no difficult procedure, which made it easier for people who were a little shy of libraries to approach them. Many people did not find the same difficulty in going to the public library as they did in going to a more recondite institution.

One of the main difficulties in the quest for information was that of getting hold of periodicals, and information periodicals in particular. It had been suggested that the public libraries might consider increasing their holding of certain of the main periodicals, and thus provide a very useful first line of attack in dealing with the problems which affected institutions where information was essential. On the other hand, it would be a mistake to assume that the public libraries had or should have the stocks or the staff to become main centres of scientific research.

An essential feature of a good librarian was that he should know where his information finished and where he should hand someone over to another department. The general picture of library work in this country, however, was beginning to take shape, and there was no doubt that the public library could perform a very important service in the modern world. It could be said that public libraries were not all in the same state of development, and that some were better than others; but they could be quite certain that the library from which Mr. Collison came was not only one of the best of its kind, but quite exemplary.

MR. R. L. W. COLLISON, F.L.A. (Reference Librarian, Westminster Public Libraries) then read his paper entitled 'Information services available at a Public Reference Library'.

Discussion

THE CHAIRMAN said that by his comments on the British Museum and the Library of Congress, Mr. Collison had introduced another hobby-horse of his, and he was sure that Mr. Collison was right in saying that the greatest achievement of the Library of Congress was to have provided in the United States an accepted leadership. The Chairman was convinced that that was so, and was equally convinced that that was the best possible service which a national library could render. There was a realization of this at Bloomsbury, but they would have to take Mr. Collison to the Treasury when next they went there to discuss their finances with their lords and masters. He did not say that the Treasury were the villains of the piece, but they certainly did not help the British Museum Library to develop its services.

COLLISON : INFORMATION IN PUBLIC LIBRARIES

Another interesting and important point was that the Library of Congress was, in fact, doing to-day exactly what that great librarian of the British Museum, Panizzi, set out as the objective of a national library a hundred years ago.

Personally, he thought that at the present time, when libraries were very large, when catalogues were very large, and when the spate of material was enormous, it was necessary to reconsider to some extent the ideas that Panizzi put forward. In order to make a large library readily usable it must probably be broken down in some way. It could not simply present all its ten million volumes at once to its readers. It must try to put itself forward as a series of different libraries, libraries smaller in scope, which could not only appeal to the reader but really be managed by the staff.

This was not a new idea ; he had been saying it at meetings of Aslib for at least six years. It was not possible to do without big libraries, and it was not possible to do without copyright libraries, but the next development was bound, he thought, to be along the lines which he had indicated. It was of interest to note in this connection that there was a proposal to put up a new building just in front of the British Museum which would become a library building, and in considering plans for this new building—they were not detailed plans, but vague and generalized—that type of development had been very much in mind. He thought that it would be possible for the national library in this country to advance still further the kind of work which the Library of Congress was doing so well. They all stood on each other's shoulders. The library which was at the top to-day would serve as a model for the library which would be at the top to-morrow. He had little doubt that the work which was being done in America, of which he was a most enthusiastic admirer, would serve as a model and a spur to make them do even better to-morrow.

MR. V. BISKE (Information Officer, Lobitos Oilfields, Ltd.), referring to Mr. Collison's statement that the peak hours in public reference libraries were at mid-day and in the evening, said that that confirmed the general finding that large numbers of users were people who went there for self-education in their own time, a very sound purpose. He wondered, therefore, whether it would be possible, though it might be unpopular, to consider opening public reference libraries in the evenings in the winter, and on Sundays. The cinemas on Sundays did a good business, and people would also be willing to take the opportunity to read.

MR. L. L. ARDERN (Librarian, Manchester College of Technology) asked whether the London reference libraries were doing anything about subject specialization in the field of periodical literature.

MR. COLLISON replied that Sunday opening was a vexed question in public libraries. What usually happened was that somebody in the district demanded Sunday opening, and a sympathetic library committee decided for a trial period of six months to open the public library from 2 to 6 or 1 to 5 o'clock on Sunday afternoons. Any librarian who had had more than a couple of years' experience could tell them—and probably did tell them, but they paid no attention—that it was not possible to create reference library work during that time. It took a long time for people to realize that the library was open at all.

Sunday opening had never been given a real trial in many districts. He believed that in London Battersea was the only district which opened its library on Sunday afternoons. When he first started work he was so enthusiastic about public libraries that he felt they should be open not only all day but all night. He was not quite so keen on it now, but he still felt that the hours which were kept at the university at which he worked in America were good and should be copied at least by the great central reference libraries in this country, those hours being 7.45 a.m. to 10 p.m. That should take care of the needs of most people.

With regard to co-operation on periodicals in the London area, there was no formal scheme, but the publication of the second edition of the *London union list of periodicals* had brought about a surprising amount of informal co-operation. Since that list had been published a number of libraries had received calls from other libraries offering them completion of their sets, and in Westminster they had heard from an enterprising librarian who said that they should give him the whole of their file of a certain periodical, since theirs was incomplete and his only lacked two volumes. Most reference libraries

in the London area were very keen on the idea of building up between them an enormous reservoir of files of periodicals. It was important, and the Americans were ahead of this country in that respect. The University Library at Berkeley, in the United States, subscribed to 18,000 periodicals. He did not suggest that in this country they should do anything on that scale, but they could certainly do more than they did at present.

Mr. A. H. HOLLOWAY (Ministry of Supply) expressed great interest in Mr. Collison's account of the services which might be expected of a reasonable reference library, and, while hating to sound a jarring note, asked whether that applied to the London borough libraries. He had, he said, a fair acquaintance with several of them, and his experience did not agree in the least with Mr. Collison's rosy account. The central London libraries, he agreed, were definitely better than the others, but the service in many of the London reference libraries suggested either that they did not possess the resources, which Mr. Collison hoped they had, or that the staff did not know what they had got.

Dr. D. J. URQUHART (Department of Scientific and Industrial Research), fearing that the observations from the platform about the British Museum and the comparison with the Library of Congress might appear to some of the audience to be the result of a conspiracy between the Chairman and the speaker, said that during his own visit to the United States he had been equally impressed by the unparalleled position which the Library of Congress took in the whole library field in America. It struck him that it was the only library which he had ever visited about which it was possible to feel sure that, whoever was running it, it would continue to do useful work. In the case of the smaller libraries, the U.S. Department of Agriculture, for instance, had a great library which was very important at the moment because Ralph Shaw was there, and he was a man with many original ideas, but if he were to go it might fall into the doldrums. In the case of the Library of Congress, however, he felt that the organization was so big that it would continue to grow organically and produce new ideas and new tools. He did not think that there was another library anywhere which had achieved that size from which organic growth became a sort of natural event.

As a footnote to that, he happened on one occasion to be standing outside the Bibliothèque Nationale with the Deputy Librarian of the Library of Congress when the Librarian of Congress appeared. On being asked how they could both be away in Paris at the same time, they replied, 'Oh, that's all right, the other 1,998 will keep it going'.

Mr. COLLISON, replying to Mr. Holloway, said he had expected that some mention would be made of reference libraries which were not so efficient as they ought to be. He had been lucky enough to work in various parts of the country and to see a great many libraries. What he had said in the paper was the result of thinking about the subject for a very long time in a strange country, where one began to see one's own country in a new light. He came to the conclusion that these were the things which people could reasonably expect of their library. If in their own area they did not get them, he thought that it was their duty as citizens to see that they did. In most libraries to-day the librarian and a good many of his staff were qualified, and they knew perfectly well that if they were not providing this material they ought to be doing so. It might be because they had not the money or because they had not the staff, but it was the job of the citizens in the area to see that they got what they needed for the purpose.

THE CHAIRMAN, in thanking Mr. Collison for his paper, said the point which had just been made was very important. The librarian often depended a good deal on local support in order to be able to do what he wanted to do. Most librarians were extremely ambitious and anxious to put all their knowledge at the disposal of their readers. He was sure that what Mr. Collison said was correct.

INFORMATION SERVICES OF THE FESTIVAL OF BRITAIN

By J. W. TRIGGS, M.B.E.

Lately, Deputy Director of Public Relations, Festival of Britain

I SUPPOSE it is true to say that no class of person in this world has so great a respect for another as the Jack-of-all-trades have for the experts. As one whose entire professional life has been spent in the fields of journalism and publicity, I am clearly a good example of a Jack-of-all-trades and consequently start off this evening with a giant inferiority complex.

For you, as I understand it, are the real experts in the information world, and you incorporate, in addition, in the title of your Association, that magic word 'specialist'. Yet the organizers of this Conference have quite shamelessly persuaded me to stand here and put before you, in the best light I can, the story of the creation of the information services of the Festival of Britain which, by your standards, must surely stand for ever as the greatest amateur effort in the information field yet seen in the twentieth century.

It seems to me that your function is to establish the finest possible specialist information service, primarily for the use of technicians. You undertake this as a long-term operation, amassing for the purpose a tremendous amount of information and, of course, a knowledge of sources from which information, of which you yourselves do not hold the detail, can be obtained. These functions involve the careful selection of staff who have to be carefully trained over a considerable period of time.

The Director of Public Relations of the Festival of Britain and I, his deputy, had a vastly different field to consider. We had to amass information from varied sources, it is true, but it was information which would only be of use for a very limited time and which, because it related to a great enterprise in the course of creation, was normally not available at the time when we could make the greatest use of it. At the same time as we were endeavouring to amass information and record it in a reasonably accessible manner, we were required to impart information to the world at large in two ways. We had to try and satisfy the demands of people who wanted to know what was going to happen long before the organizers had made up their minds, and we had to try and make available facts to enthuse the vast mass of the public upon whose interest the success of the Festival must in the end depend.

As far as staff and finance were concerned we were a Government Department, under the Lord President of the Council and were, therefore, subject to the normal Treasury regulations. We had to budget annually and often had to wait for a new financial year before we could afford staff which were urgently required for training. I hasten to say that the permanent Civil Servants, who were for their sins attached to this curious

department, were first class and performed miracles, but, of course, it takes a good deal more than a mere Festival of Britain to get round Treasury procedure.

I think that the best plan will be for me to attempt to cover my subject in three main phases : first, a very brief description of the scope of the Festival and the setting up of a headquarters staff ; second, the methods used to obtain information ; and third, the methods used to disseminate such information as we were able to gather. I shall do my utmost to restrict my remarks to the purely information aspect, but I warn you that from time to time I shall inevitably have to mention publicity in the broader sense and may even on occasion make you all shudder slightly by referring to such vulgar things as advertising. After all, I was never able to separate them while I was on the job, and, indeed, had to integrate them closely.

The scope of the Festival of Britain was nation-wide. It did not comprise merely the South Bank Exhibition and the Festival Pleasure Gardens, but included official exhibitions and arts festivals in somewhere between fifty and sixty centres all over the country. The headquarters, in London, was directly responsible for running the South Bank Exhibition and the other exhibitions in London, a heavy engineering exhibition in Glasgow, and two travelling exhibitions which visited provincial cities by land and by sea. Other exhibitions and arts festivals were produced under the direct control of other bodies, such as the Government of Northern Ireland, who produced an exhibition in Belfast, and the Arts Council who influenced through financial aid independent committees producing arts festivals. But in addition to the official programme the nation was encouraged, through direct approaches made by the Festival office to the local authorities and great national voluntary bodies, to mark the Festival in its own way in local communities, both by ephemeral celebrations and by permanent improvements to local amenities.

In the middle of 1948 when, it must be remembered, even the handful of us who had joined the Festival staff had comparatively little idea of how plans would formulate or how wide the scope of the Festival might be, my director and I were faced with the problem of deciding what sort of staff we should need. Having decided it, we knew that we would have to go through the usual channels and justify our forecast. We decided that we would divide the public relations branch into three sections with the two of us exercising an over-all control. One section was for general publicity and had the task of creating pamphlets, brochures, etc., and of directing the international as well as national advertising campaigns. A second section was the Press office with the normal functions one would expect, and the third section was the information office. At that stage we had little or no idea as to what we would require of our information office. The only concrete plan that we had for that section was for the creation of an information room at the Festival Headquarters, at Savoy Court, in London. This would be for use, not by the general public, but by the headquarters' staff and, as

TRIGGS : FESTIVAL INFORMATION SERVICES

time went on, for the Press. We vaguely envisaged that we would need some form of public information centre nearer to 1951. The staff of the headquarters information section was appointed in October, 1948, and consisted of a male information officer with two women assistants and a secretary.

The task of the information officer was, therefore, to build up from nothing an information room for internal use and also records in his own section from which he could answer not only the general enquiries from all departments at headquarters, but the particular enquiries made day-to-day by the publicity and Press sections of the Public Relations department. You may well say to yourselves, if you judge his task in the light of what I have assumed to be your very ordered lives, that there was nothing particularly out of the ordinary in the duties of this information officer. I think that I would agree as far as the scope of his duties were concerned, but I want to give you some idea of the conditions under which he had to operate. Although no words of mine could really describe the almost insuperable difficulties, I think that when I have given you an outline you may well be surprised to learn that it was only necessary to replace the information officer once during the three years and that was because our first officer went to a better job and not because he died of nervous exhaustion.

This unfortunate information officer moved in the complete example of an ever-changing world. From when he was appointed in 1948 until the official Festival programme was said to be complete and unalterable (which, of course, never proved to be the case) in November, 1950, he was faced with the task of not only sorting and filing an ever-increasing mass of technical and general information, but also with daily changing large portions of his records as ideas were scrapped or amended. To go into that side of his task in detail would be both lengthy and boring, but perhaps I can illustrate it with one example. I have already said that there were something between fifty and sixty official Festival events in the country. All of these necessarily had to have dates from which they would begin and when they would end. These dates, from the policy point of view, had to be co-ordinated and staggered through the period of five months, from May to September, 1951. The organizers of every official event, whether at headquarters or in the country, had their own reasons for wanting particular dates and inevitably succeeded in clashing with other people's dates. Also, as time went on, organizers would find that dates they had thought suitable would not now be suitable and would have to be changed. Consequently, the information officer had constantly to sift through hundreds of sets of minutes from departments, organizing bodies, etc., to see whether changes in date had been made. In the most technical document on tides around the British coasts might be the clue to the fact that the sea travelling exhibition was not now going to Llandudno, and that might be the first intimation the information officer might get. Very often, of course, a change in date was made but was not recorded in a minute or the minute was not sent to the information officer, and then he had to rely probably on chance. Those of us of the

Public Relations Department who attended policy committee meetings did what we could to pick up any date information and let the information officer have it. You will realize how important it was that he should make every effort to keep dates accurate right from 1948 onwards, since from November, 1948, we began preparation of folders, brochures and Press advertisements for overseas and later for the U.K., all of which had to carry accurate date information. In fact, of course, no publication ever carried the complete set of dates completely accurately. But the fact that there were normally not more than two or three inaccuracies pays a tribute beyond all measure to the work of the information officer. Relate that story of dates to the whole of the information officer's work and you may perhaps begin to get some slight idea of his difficulties.

The information officer was spared the task of gathering detailed information about the activities of local authorities and voluntary bodies, since so vast an activity required the setting up of a special department for liaison under the ægis of the Secretary of the Festival office. There are many thousands of schemes which were finally recorded in a special catalogue, of which I have a copy here should anyone be interested to see it. It is a document of which its authors may well be proud.

I have said that we created an information room at headquarters, and I must be perfectly honest and say that it was not a success. It proved very clearly that it is not possible to organize such a room unless an adequate trained staff can be maintained to do nothing else except keep the displays up to date.

Maps, wall-charts, models and the rest were often out of date within a few hours of being created, and the unhappy information officer was always being summoned by some angry director or organizer whose sole interest in the room was to check up on his own pet masterpiece. We spent very little money on this room, but what we did spend, and the enormous number of man-hours involved in its maintenance, did not earn a dividend.

Before I pass on to the problems of disseminating the information so hardly collected I must satisfy the curiosity of any of you who may wonder what has happened to the information officer's archives. When the Public Relations Department closed down on October 31st, 1951, the information officer temporarily became an archivist, pending the hand-over of this function to a permanent Civil Servant. All records of the whole department were collected and sifted and thus invaluable data has been preserved and we may hope that future Festival organizers will at least be able to profit by our experiences. The Festival office is still being wound up, but in due course all records will be available at the Public Record Office in Chancery Lane.

The problem of disseminating information fell into two well-defined phases, dictated by timing. Clearly we had to concentrate first on the Commonwealth and foreign visitors, then turn our attention to the public in the U.K.

Preparation of brochures and advertisements for overseas was well under way by the middle of 1949, two years ahead of opening day. The

TRIGGS : FESTIVAL INFORMATION SERVICES

constantly changing plans to which I have already referred made the task of ensuring accuracy an exciting one.

The first brochure was issued in March, 1950, to coincide with the opening of an information bureau in the Leicester Square offices of the British Travel and Holidays Association. This was designed to catch the 1950 overseas visitor and give him some facts to take home with him. There followed at intervals, until about March, 1951, more brochures in the principal languages. These were timed to fit in with our overseas advertising campaign, which was conducted in about fifteen languages, including Chinese and Arabic.

All travel organizations, shipping and air lines, travel agents, railways, etc., were briefed and were provided from time to time with a special information summary. These organizations were of tremendous value, as they had a world-wide network of offices which were able to act as information centres on our behalf. The keynote of the overseas campaign was the maximum use of all existing information outlets. As a Government Department we were, of course, able to use the Foreign Office information offices in overseas missions and the services abroad and here of the C.O.I. and British Council.

We also sent four London buses, equipped as travelling information centres, round eight countries of Western Europe, from July to September of 1950. These were staffed by a composite team from the Festival office and B.T.H.A., commanded by an experienced Continental officer seconded from British Railways.

The difficulties of imparting correct information to the general public at home were definitely more complex. As you will recall, the whole concept of a festival had been coloured here by the economic situation, and by some political and Press misrepresentation. In addition, people here had been able to watch the Festival plans take shape and it was not easy to decide when to correct erroneous ideas and when to hold one's fire. You must remember also that our funds were limited and if we started to publicize Festival events too soon we might find ourselves without the finance to sustain the campaign and reach a climax of publicity just before the opening day. In addition, we had to carry on detailed information services about prices of tickets and other matters which might change daily throughout the five months of the Festival.

There was on the whole little pressure put upon us by the British public until September, 1950. September is, of course, the month when business begins to consider what its plans for the following year should be. In September, 1950, countless commercial concerns suddenly realized that the Festival was actually going to take place in 1951 and immediately we were overwhelmed by enquiries as to how every conceivable business interest could climb on to the band wagon. This influx of enquiry resulted in pressure being put upon the information services, both from within the organization and without, for the release of full details to the public.

My department made a difficult decision, but one which in the event proved quite correct. We said in effect 'The man in the street is not

interested in the Festival until 1st January, 1951. We will do all we can to help interested business and other organizations, but we will not advertise, or set up information centres, until that date.'

I have no doubt whatsoever that our timing was right. Had we beaten the drum in the autumn and winter of 1950 we would have gone to the public before they were ready, and we would not have been able to sustain the campaign when interest was really aroused.

In January we opened our main information centre. The siting of this had caused us many headaches as early as 1949. It had to be in the centre of London, and it had to be in a main thoroughfare used by provincial and foreign visitors as well as Londoners. The public is notoriously lazy and will not go even twenty yards out of its way to seek information. Bravely, but with little hope, I set out one afternoon to negotiate with Messrs. Swan & Edgar for a portion of their lower ground floor at their Piccadilly Circus premises. To my joy the firm generously responded and gave us a first-class position at a nominal rent. The centre was designed and erected in the last four months of 1950, and in the eight months of its existence handled hundreds of thousands of enquiries. The manager of the Leicester Square information bureau ran this new centre, with a staff of a dozen. Organizers of both official and unofficial events were encouraged to send all available information material to this point. When the Festival opened it was found necessary to set up a special ticket office at this centre for the South Bank Exhibition and Battersea Gardens. We were fortunate in being able to select some really intelligent staff, since all I could arrange for them before they took up their duties, was a two-day course from me. After that they had to learn as they went along.

Using the Piccadilly information centre as the hub of the system we concentrated our efforts, as we had for the overseas information service, on making the maximum use of existing means of getting details of the Festival programme over to the public.

All travel agencies naturally required information for business purposes, and in addition many other commercial concerns volunteered to assist, provided posters, brochures, and the rest were made available. One notable example was the gesture made by the Lewis chain of stores in the provinces. In each of these a special Festival of Britain information centre was set up and we were, therefore, automatically covered in such places as Birmingham, Manchester, Glasgow and Leicester, and the surrounding districts.

The local networks provided by the big national voluntary organizations proved invaluable and a handful of us spent every second we could afford away from our desks stumping the country briefing women's institutes, rotary clubs, publicity associations and the like.

In the case of the W.V.S. I ran a one-day briefing conference at Savoy Court, to which they sent information officers from all over the country. This organization also provided the staff for a special information centre set up early in 1951 in the Ocean Terminal at Southampton to catch the transatlantic visitors as soon as they landed.

TRIGGS : FESTIVAL INFORMATION SERVICES

Public library services played a most important part as information bureaux all over the country. Some authorities, notably Kensington, Manchester and Nottingham, made the creation of an information bureau one of their main contributions to the Festival.

When the Festival was opened by H.M. the King on 1st May, 1951, the information services in the U.K. may be said to have formed a comprehensive network covering all major centres. All posts were serviced by the Piccadilly centre and could telephone or send queries there. As each official exhibition opened it contained its own information centre which could give details of all other activities and supplement the bare facts which were given in the main advertising and classified columns of the newspapers.

The South Bank Exhibition, which for so many people always remained 'The Festival of Britain' in spite of our efforts to swing the publicity away from it to other Festival events, naturally had its own information bureau. This was not, however, well sited and proved conclusively that a bureau must be thrust under the eyes of the crowds if it is to be used to capacity. In any case we found that people tended to seek general information about Festival events when they were away from the South Bank. At the South Bank they were usually only interested in information actually related to the Exhibition, as, for example, where such-and-such an exhibit was to be found, or where one picked up one's lost children. (The police collected on an average twenty-five of these per day.)

I make no apology for the incompleteness of my story of the Festival information services. I think I must have said enough to show you that the nature of the task, against the background of a limiting time factor, inevitably meant incompleteness and confusion when compared with the long-term and highly accurate functions that you perform. I hope that I have at least shown that information in the sense in which we had to interpret it covered the widest possible field. I have necessarily only touched upon its many aspects and there are probably many points of detail about which you may care to ask questions which I sincerely hope I shall be able to answer.

Chairman's Remarks

MISS BARBARA KYLE (Librarian, Royal Institute of International Affairs), the Chairman of the third session, said that the Conference Committee wished her to say that although the programme might look like a series of unconnected short stories, it was hoped that this was not true. The Conference Committee had planned the Conference with the idea that those taking part, instead of concentrating on particular narrow interests, such as U.D.C., should from time to time take a wider view of information and see whether they could learn anything from dealing with information in the widest possible sense. If the programme were regarded in that light, it would be seen that there was a connecting link. The Conference had begun that morning with a general picture of the whole problem, on which it was hoped at particular points to hang particular pieces of information. Speakers had been invited to deal with the collection and dissemination of information from the most varied fields.

It was here that Mr. Triggs came in. He was professionally concerned with information, but not in the strict and narrow sense in which this was normally regarded by Aslib. He would deal with the information services for the Festival of Britain. If he was found to have done the sort of things which Aslib members in their own narrow

way would have done, that would be interesting because it would show the existence of general principles. If, on the other hand, he had done things differently, that would also be interesting. Not being hag-ridden by some of the devices usually employed, he might have made discoveries by which they would profit.

MR. J. W. TRIGGS, M.B.E. (late Deputy Director of Public Relations, Festival of Britain) then gave his paper entitled 'Information Services of the Festival of Britain'.

Discussion

MR. F. B. ROBERTS (Chief Assistant Editor, *Engineering*) suggested that it would be interesting to hear something about how *Design Review* was being conducted now that the Festival was over.

MR. TRIGGS confessed that he did not know the answer. It had been run entirely by the Council of Industrial Design, and information could be obtained from Mr. Paul Reilly at their headquarters in Petty France.

MR. BERNARD CHIBNALL (Librarian, Shell Film Unit) said he understood that the public sometimes reacted to the information which Mr. Triggs gave out in an unexpected fashion. That was a matter of some importance to information officers, who sometimes found that the information which they provided was not accepted or evoked a completely different response from that expected.

MR. TRIGGS remarked that that brought back horrible memories. One instance of the kind in question had been the reaction of the public to the information about paying for tickets. Many people, including the police, were worried by the problems of crowds and parking which might arise at the South Bank, with the prospect of enormous queues waiting to get into the exhibition, and so a system was devised by which tickets could be bought in advance, and he had had the job of publicizing this. The publicity had been so successful that the advance ticket bureau was overwhelmed. It was then discovered that people everywhere were saying, 'Look at the crazy way in which this exhibition is being run! You have to book to get in!' He had, therefore, had to go into reverse and tell people that in addition to being able to book they could get in by paying at the gates.

It had also been shown that it was a waste of time and money to try to persuade the public of something when they had already made up their minds about it. Although in the provinces there was a much better awareness of what the Festival of Britain really was, to Londoners the South Bank was the Festival of Britain. Great efforts were made to get them to go to Poplar and South Kensington and to the Arts Festivals up and down the country, but it would have been no use spending money on paid advertising for the purpose of telling them that the South Bank Exhibition was not the Festival of Britain.

The only way in which it might have been possible to do it was by word of mouth. They never had anything which could properly be called a lecture service, but towards the end of the planning of the Festival there arose a tremendous demand for speakers for almost every conceivable sort of organization. In the end two professional lecturers were engaged, but, with due respect to them, the job was not one for a professional lecturer; one had to know the answers to all the questions which came at the end of the lecture. For about eighteen months, therefore, he and others snatched whatever time they could away from their jobs to travel about the country talking about the Festival.

MR. C. E. C. HEWERTSON (Consultant, Aslib) emphasized the importance of giving people the right information, since if one gave them wrong information they would never trust one again. With so many voluntary workers for the Festival of Britain, he thought it must have been difficult to prevent them giving wrong information.

MR. TRIGGS agreed that it was, and said that with so many people giving wrong information it was almost impossible to correct it, although attempts were made to do so when possible. In the conditions which existed, it was inevitable that a good deal of wrong information should get about.

THE CHAIRMAN, on behalf of the Conference, thanked Mr. Triggs for providing such an admirable Saturday evening entertainment, together with some information which would be of use in the future.

A REVIEW OF THE RESULTS OF THE ROYAL SOCIETY SCIENTIFIC INFORMATION CONFERENCE, 1948

BY D. J. URQUHART, PH.D.

Principal Scientific Officer, Department of Scientific and Industrial Research

I ACCEPTED Mr. Wilson's invitation to speak on the results of the Royal Society Scientific Information Conference gladly because the conference seems to me to have had important results. In reviewing those results I want to try and indicate both what was achieved as well as what remains to be done and what new problems have risen to the surface. I also want to tell you of some of the things we are doing in the Department of Scientific and Industrial Research (D.S.I.R.) and to invite your comments on them. To that I must add a caution that this is not an official paper. What it contains are my personal views.

Naturally, in preparing my notes I turned to the published report of the Conference and then I wondered where to begin. I remembered joining D.S.I.R. at the beginning of 1948 and then before I had time to think I was on one of the conference working parties with Dr. Holmsstrom. The conference lasted from 21st June to 2nd July, 1948, but much work was done before that. Professor Bernal was active in trying to find out how scientists used scientific literature. The results of his investigation showed clearly that libraries and not the flow of reprints were the major supply factor. That idea may seem to be very old, but it certainly seemed new to Professor Bernal. Its demonstration focused the attention of scientists on the need for improved library services and was instrumental in enlisting their support for better libraries. Which shows that it is sometimes worth while to prove what may seem to be obvious.

Well, what has been achieved to improve scientific libraries since 1948? The Science Museum Library has been subjected to a fierce limelight. The Advisory Council on Scientific Policy has set up a permanent Scientific Library and Technical Information Committee. That committee is there to give official consideration and support to worth-while schemes. So far it has devoted its attention to a scheme for turning the Patent Office Library into a Central Scientific Reference Library and to considering the future of the Science Museum Library.

The effect on the national scientific libraries may not yet be apparent, but the official policy is now quite clear. The nation must have an adequate system of scientific libraries. No longer do we depend upon the imagination and wit of a Dr. Bradford to turn a small museum library into a national library providing a national service. Now the Science Museum Library is having difficulty in keeping pace with the demands for its services.

But to return to how scientists use scientific literature. The idea of doing research on this subject did not go unchallenged. Operational

research is now a popular term, but the idea of doing 'research on research', and that boldly is what is concerned, is not very popular, particularly with scientists.

Indeed, even to-day it is unwise to talk to scientists about 'research on research'. They don't like it. But I have little doubt that as the difficulty of finding enough research scientists continues we shall be forced to do operational research to discover the best arrangements for the ancillary services required by research teams. These include, of course, information services and workshop services. However, the idea that there should be research on the use of scientific literature survived the conference.

I was particularly concerned with this subject. It has been clear to me for some time that the main reason new or better information services did not appear was not because there is some hidden spirit conspiring against the bright ideas of information officers, but because there is a complete lack of authoritative evidence which would justify any of the schemes proposed.

The Royal Society Conference marked the beginning of an attempt to collect such evidence, but it was not easy to plan further researches. We had too little information even to do that. We found we could get little further out of the data collected for the two papers on this subject in the conference report. Eventually we stopped trying to discover how scientists get information. We turned the problem upside down and tried to discover what were the faults in the present system of providing information. *Unanswered Questions* was born of this approach. The main experimental results of that venture so far seem to me to be that it is now clear that it is possible, once a question rises to the surface, to find whatever information exists on the subject. But this may take time.

Despite the notion of Bradford and others that half the world's scientific output is lost because it is not abstracted, there is no evidence to support this view. Indeed, I think information officers risk being considered as cranks by working scientists by repeating it. What we can say for certainty about abstracts is that there is a considerable risk of a relevant paper being missed due to inadequate subject indexing. One of the recommendations of the conference was that abstract publications should issue a consolidated subject index at least once in every ten years.

Little progress has been made in this direction.

I do not think our research activities have produced any other information relevant to the subjects discussed at the conference. There are defects in the existing information system, but there do not appear to be any major faults in the system as significant as the fact that so many who might use the system more, hardly use it at all. One of our recent surveys, for instance, has shown that three-quarters of all industrial organizations have less than fifty books and less than five periodicals of any sort.

But I must return to this subject later.

The Council of the Royal Society following the conference set up an information services committee. The Chairman and I were two of its

URQUHART : RESULTS OF THE R.S. CONFERENCE

members. I have served on a lot of committees, but I think this is one of the most useful committees I have ever served on. Somehow it got things done. Take the subject of copyright. The instinct of most people when copyright is mentioned is to run a mile. Scientists are just the same only I think they would like to run faster.

At the conference, persistent lobbying and vigilance was necessary to get any mention of this subject in the recommendations. But let me read the proud words which eventually appeared: "The Royal Society is invited to exert its influence to obtain universal acceptance of the following principle:

"Science rests upon its published record, and ready access to public scientific and technical information is a fundamental need of scientists everywhere. All bars which prevent access to scientific and technical publications hinder the progress of science and should be removed.

"Making single copies of extracts from books or periodicals is essential to research workers, and the production of such single extract copies, by or on behalf of scientists, is necessary for scientific practice."

'The Conference believes that in some countries copyright restrictions are preventing the free flow of scientific information to research workers and that some action is necessary to remove this obstacle. The Royal Society is invited to initiate such action in the United Kingdom.'

The Information Services Committee after the conference would like to have dropped the whole subject, but they did not and the Royal Society Copyright Declaration appeared. What is more, Dr. Allibone, who was mainly responsible for this declaration, was asked to serve on the committee set up by the Board of Trade to consider the revision of the Copyright Act. The report of this committee has not yet appeared.

The Royal Society, on the advice of the Information Services Committee, have issued a number of publications which have become some of the basic tools of information work. These include:

A list of periodicals and bulletins containing abstracts published in Great Britain (2nd edition, 1950).

A list of British Scientific publications reporting original work or critical reviews (1950).

General notes on the preparation of scientific papers (reprint with additions, 1950).

The latter deals with the preparation of authors' synopses. That word 'synopsis' was a post-conference idea. At the conference we talked of authors' abstracts and then the fat was well and truly in the fire. The professional abstractors rose as a body and said 'impossible'. The temperature rose so much that rational discussion on the subject was impossible. Then afterwards the word 'synopsis' appeared and reason returned. Nowadays, in D.S.I.R., we prepare a confidential abstract bulletin of reports received and half of the abstracts we use are authors' synopses.

Copyright, authors' abstracts and research on the use of scientific literature were the main controversial subjects at the conference, but the recommendations include many items about which there was, and is,

general agreement. I can only touch on some of these. Recommendation 10.13, for instance, urged His Majesty's Government to enable

'the Science Museum Library and the Patent Office Library to extend their collections with the object of including in either or both, in some form, every publication which contains material of value to science and technology'.

There is still a long way to go.

Recently I made an analysis of the entries in the new edition of the *World list of scientific periodicals*. One of my conclusions was that the Science Museum Library, which is the most comprehensive collection of scientific literature in this country, could increase the number of periodicals it holds by at least 50 per cent. without in any way extending its scope.

Recommendation 10.2 is really on the same subject. It relates to the procurement of rare foreign periodicals. The Royal Society itself tried to do something about this by obtaining sample copies of periodicals from Czechoslovakia, Hungary, Japan and the Middle East, but to my mind the problem can only be satisfactorily solved if the national scientific libraries give more attention to it. D.S.I.R.'s *Translated contents list of Russian periodicals* has made some contribution to the special problem of increasing the availability of Russian literature. This list has become so popular that we are having to put it on sale.

Besides considering the importance of library holdings, the Royal Society Conference drew attention to the importance of issuing a new edition of the *World list of scientific periodicals*. In D.S.I.R. the torn and tattered state of our copy of the second edition of the *World List* indicates that it was the most heavily used publication in the library. So we were very glad when a new edition appeared. I know some organizations have been wondering whether, in view of its high price, it was worth while purchasing a copy. We considered this problem in D.S.I.R. Butterworth's said that they expected the third edition to be current for ten years. On that basis, I came to the conclusion that the cost of the labour saved by a copy of the third edition in any organization which borrowed a hundred scientific periodical items a year from outside sources would exceed the cost of the publication. It may be an economy and it will save time and irritation to have a copy of the new edition of the *World List* even in organizations which borrow less than a hundred scientific periodical items a year.

Of course, all scientific information is not recorded and the Conference stressed the importance of guides to sources of information. Mr. Wilson will tell you what Aslib has done about this. In D.S.I.R. we issued, in May, 1951, *The brief guide to the research activities of D.S.I.R. and the Research Associations*. We intended originally to prepare an enlarged guide in the same format covering all types of specialized sources of scientific and technical information, but I think we will have to content ourselves with producing a revised edition of the existing guide. However, your comments on this problem would be appreciated.

For some time past we have been issuing for limited circulation copies

URQUHART : RESULTS OF THE R.S. CONFERENCE

of *Scientific research in British universities*. This is compiled by the British Council. A new edition of this will be on sale next week. This publication has some defects, but it is very much better than nothing and it appears to be the only way the rapidly changing research activities in universities can be recorded in a reasonable time. In D.S.I.R. we hope it will be possible to issue it each year.

Recommendation 10.4 relates to the availability of deposited material. It reads :

The Royal Society is invited to consider the procedure used in some countries, e.g. by the American Documentation Institute, whereby scientific documents or parts thereof, publication of which is impracticable by ordinary channels, are preserved and copies of them are made available on demand. If a need for a similar service in this country is established, the Royal Society is invited, in consultation with appropriate bodies, to initiate action to provide such service.

I don't think very much has happened about this except in T.I.D.U., which has, since the conference, been transferred from the Board of Trade to D.S.I.R. That unit, which was primarily concerned with making available the industrial documents taken from Germany at the end of the last war, is now making available unpublished reports and documents, and it is willing to act as a national depository for such material if necessary. Let me give you an example of the sort of thing the Royal Society Conference had in mind. Some months ago in D.S.I.R. we had to consider what to do about publishing a report which consisted of about sixteen pages of text and 790 tables. In the end we decided to print only the text but to have copies of the tables available in T.I.D.U. and on microfilm.

In my opinion one of the most important recommendations reads :

As part of their education scientists should be instructed in the use of libraries and information services. This should be done at two different stages.

Despite this and Mr. Agard Evans' excellent paper on training the user,¹ little or nothing has been done. I am not sure how this recommendation could be implemented and I would welcome advice on this subject. In some Scandinavian universities at least the responsibility for training scientists to use scientific information has been accepted by the university library staffs. In Delft, I understand that the library staff is beginning a course this coming session. It may be that university library staffs can tackle this problem in this country. Some action appears very necessary. It is not so long ago since a publication was returned to the Science Museum Library with an article missing. When enquiries were made of the Government Department concerned the Science Museum Library received profuse apologies and an explanation. A young engineer had been told to abstract an article. He had 'abstracted' it and he had taken the first page of the next article as well.

While this sort of thing is possible the position seems to me to require

¹ B. AGARD EVANS. Training the library user. *Aslib Proceedings*, vol. 3, no. 4, November, 1951, pp. 239-44.

urgent attention. What can Aslib do about it? What can the new Standing Conference of National and University Libraries do? We in D.S.I.R. are willing to help in any way we can. We consider this subject is very important. At present, for instance, one of my colleagues is devoting some time to the question of training students in technical colleges.

One of the recommendations (No. 11) has been frequently quoted out of its context. This recommendation states :

That information officers and special librarians should be regarded as equal in standing to fellow scientists employed in research, industry and administration and should receive comparable treatment in training facilities, rank and emoluments.

The idea behind this recommendation was that scientists on information work should not thereby be penalized compared with scientists with comparable qualifications and abilities on research work. It was not that information officers with inferior abilities or subject qualifications should have the same prospects as better qualified research workers.

I will end this review of the resolutions of the conference by referring to what was one of the outstanding resolutions of the conference. This relates to mechanical selection. It begins :

The Conference has concluded that in the field of subject indexing and selection, designers of apparatus are well ahead of users in the facilities they offer or plan to offer in the near future.

This statement was and is to my mind outstanding because it is the only one I can find in the recommendations which was wrong. I don't want to analyse the mechanical selection notion here. I would like an opportunity to debunk it. Now I will content myself with saying that whatever are the future possibilities of mechanical selection it is at least clear that the existing machines are not really suitable.

In the U.S.A. they are still trying to make the rapid selector a useful tool, and in the punched card realm we read that new machines are being developed. In 1948 no suitable machines existed.

As regards subject indexing and mechanical listing we have tried to use the fairly large and up-to-date punched card installation in the National Physical Laboratory, but the results are not really satisfactory. I think we need new machines and that is the opinion of our machine experts.

The Royal Society Scientific Information Conference dealt with many subjects I have not mentioned. Mr. Wilson will deal with some of these. The Conference sought to improve the flow of information to scientists. It considered all the questions on this subject that had then been formulated. Two subjects this meeting might consider are these :

- (a) Are any of the outstanding recommendations of the Conference, other than those I have mentioned, of major importance?
- (b) Have any new questions connected with the flow of information to scientists emerged since 1948?

Finally, we should ask ourselves : Is there a need to-day for a similar conference? In my opinion there is no such need. The Information

URQUHART : RESULTS OF THE R.S. CONFERENCE

Services Committee of the Royal Society has ended its work, but the Council of the Royal Society is watching developments and the Abstracting Service Consultative Committee which it created still exists. To my mind the Royal Society Council, Aslib and the Scientific Libraries and Technical Information Committee of the Advisory Council on Scientific Policy should be able to deal with any troubles which arise. But the position is not satisfactory.

The provision of scientific information to scientists themselves, however necessary it may be, is not an end in itself. Scientific information is only of value to the community when it is used in the interests of the community. If the flow of scientific information to scientists is becoming satisfactory the next question to consider is the flow of information from scientists to users. At the present time there is a special importance in making scientific information available to industry in a form which can be used by industry.

Once this subject is considered a host of questions arise.

On some of these questions we have only recently begun to collect data. On many we have little or no information.

Let me give you an example which will illustrate the difficult nature of some of the problems. The Royal Society Conference considered the preparation of scientific papers and in this field there has been some progress. No longer is the ability to write a paper which nobody else can understand taken as the apex of scientific achievement. But the problem of writing for scientists whose interests, vocabulary, and intelligence levels are known is much simpler than the problem of explaining science, and what should be done about it, to non-scientists. Their understanding of technical processes is so small it is difficult to know where to begin. It is necessary to excite and retain their interests until the points requiring action have been explained and yet non-scientists must not be flooded with too much to read. Somehow they must be given the right things to read.

The problem of providing technical information to industry is an international one. Within the last two years I have visited North America and several countries in Europe with O.E.E.C. teams trying to learn how the problem was tackled elsewhere. We saw many interesting things, but I don't think we learnt anything of major importance. We visited industrial organizations in the U.S.A., in Germany, in Holland and in Sweden. The types of organizations we visited are household names internationally. In these large industrial organizations the methods used for supplying technical information are very similar. But how smaller industrial organizations compare we don't know.

The supply of technical information to such firms is to my mind the central problem facing technical information services. This is a subject which might well be the theme of another information conference conceived on the scale of the Royal Society Conference.

The difficulties of organizing such a conference are considerable because the majority of the industrial organizations concerned are inarticulate and unaware of their need for technical information.

Do not mistake the nature of the problem. Half of British industry is carried on by some 2,000-odd industrial establishments with 500 or more employees each. The firms concerned number possibly 1,000. These are the sort of firms that are nearly always members of Research Associations. Some are members of Aslib, and others could, no doubt, benefit from membership of Aslib.

But what of the other half of British industry? It is carried on in some 50,000 establishments. Very few have any technical information services. Very few are members of Aslib. Possibly only one-fifth are members of Research Associations. If you think of Aslib as an Association of special libraries and information services it can have very little to contribute. If you think of Aslib as an Association of those who need information the possibilities are enormous.

Which road is Aslib to take?

ACTION TAKEN BY ASLIB TO IMPLEMENT THE CONFERENCE'S PROPOSALS

BY LESLIE WILSON, M.A.

Director of Aslib

Reported

MR. WILSON said that his brief was to explain, as far as possible, what action Aslib itself had taken to implement the proposals made at the Royal Society's Scientific Information Conference held in 1948, but he would also like to comment briefly on the opportunities for service which now confronted Aslib, largely because of the wider appreciation of information services resulting from that conference. Aslib's response to the conference's proposals had been conditioned by cramped quarters and straitened finances until the beginning of 1950 and even, in some measure, until the middle of 1951, but the following table (showing those recommendations which had been directed towards Aslib, or which Aslib had taken up, or which he thought Aslib might reasonably have taken up) would show what had been achieved and what left undone. To save space, the recommendations have been paraphrased, and progress given in note form.

Recommendation

3.1 Aslib, or some other organization, should try to get societies, libraries or even commercial organizations to act as agencies for obtaining and distributing separates.

4.4 An agency should be set up to assist authors of papers destined for reproduction by photo-litho, so as to encourage the highest standards of presentation where this form of reproduction was appropriate.

6.2 Organizations should exchange lists of periodicals which they currently received and abstracted.

Action taken

Nothing had been done by Aslib and, in any case, it was probably not a very promising project.

Though Aslib did not aim to become this proposed 'agency', it had acquired a litho-offset machine and had ordered an electric type-writer. With this equipment and its existing photo-copying machinery, it intended to carry out experiments with this form of reproduction and to place any fruits of its experience at the disposal of members.

Since the Aslib special groups had been formed—there were now six—the exchange of lists of periodicals taken had become one of their basic activities.

Recommendation

- 9.2 Production should be encouraged of annual reviews, progress reports, etc., covering limited fields in a comprehensive but critical manner.

- 10.1 The Government should be urged to give increased support to central scientific libraries, especially the Science Museum Library and the Patent Office Library.

- 10.2 The Royal Society should be invited to consider means of facilitating the receipt, location and availability of foreign, particularly Eastern European, literature.

- 11.1 Early recognition should be given to the desirability of regarding information officers and special librarians as equal in standing to fellow scientists,

Action taken

Aslib had not given any special attention to this proposal in relation to science, but a one-day conference was being planned on 'Bibliographical problems in the Humanities', one purpose of which would be to examine the adequacy of the coverage provided by existing Year Books in individual subjects. When the nature of the gaps were revealed, representations would doubtless be made with a view to getting them bridged.

This was now the proper concern of the Scientific Library and Technical Information Committee of the Advisory Council on Scientific Policy. But Aslib had placed before it, and before the Director of the Science Museum, the results of an enquiry carried out in 1950-51 into :

- (a) the *potential* demands upon the Science Library loan services ;
- (b) means of speeding up these loan services ;
- (c) the need for a telephone enquiry service at the Science Library.

This initiative has been warmly welcomed.

Though this recommendation was addressed to the Royal Society, it seemed that Aslib also ought to be able to contribute materially to the solution of this problem, in view of the war-time achievements of the Aslib Microfilm Service. The matter was worthy of early examination.

Much discussion had resulted in little progress on this most intractable problem. Status would ultimately be decided outside the profession rather than within it, but,

WILSON : RESULTS OF THE R.S. CONFERENCE

Recommendation

and all possible help and encouragement should be given to Aslib and the Library Association in their work of defining and raising the level of training and status of these grades.

- 11.2 Scientists should, as part of their education, be instructed in the use of libraries.

- 13.2 Every encouragement should be given to the Aslib Committee on the Mechanized Distribution of Information to continue its valuable work,
and

- 13.3 Organizations experimenting in the use of mechanical methods should keep the Aslib Committee informed of progress.

- 17.1 A general directory to sources of all types of specialized information was desirable and a special grant should be made to Aslib to compile a new edition of the 1928 Directory within two years.

- 18.1 Aslib should give more publicity to its Register of Specialist Translators with a view to registration of all competent translators, and to ensuring that all potential users were

Action taken

on the training side, Aslib had continued to hold its junior courses, had begun an annual senior course, had encouraged and helped to plan courses in the provinces, and had tendered advice to the Library Association on its examination syllabuses.

Discussions had, so far, led to no practical results. Some universities were doubtless providing this instruction at least for undergraduates ; others might well accept the suggestion, though it would probably come better from prospective employers, who could 'call the tune', than from a library organization.

The Aslib committee had died of inaction in 1949, but, since the Aslib consultant was appointed in January, 1952, he had, among other things, been accumulating information about various experimental methods of mechanical selection. This, together with references to published notices, was available for consultation.

No grant had been made to, or sought by, Aslib, but four *Guides to Sources of Information* affecting four industries had been published. Now work was proceeding on a new Aslib Directory. A card index of some 6,000-7,000 addresses had been compiled and questionnaires would be sent out shortly.

Publicity was automatically given to the Register in all approaches to non-members. It was not, however, feasible to aim at registration of all competent translators, since the L.C.C., which licensed the

*Recommendation**Action taken*

aware of the Register's existence.

Register, was naturally anxious that there should be enough work to go round to all those enrolled. About 100 were now registered, the worst gaps being in Japanese and in organic chemistry.

18.3 The Standing Committee of the British Commonwealth Scientific Official Conference should be invited to consider setting up a central location index of translations.

In co-operation with the B.C.S.O. and by means of a contract with D.S.I.R., such an index, covering the whole Commonwealth, had been established at Aslib for just over a year. It contained some 6,000 translations, under author and journal. About 750 enquiries had so far been received, some 3.5 per cent. being answered in the affirmative. (Roughly the same percentage result as reported by the Special Libraries Association in U.S.A.)

19.2 The British National Committee on Documentation should appoint an advisory committee on documentary reproduction.

The B.N.C.D. had dissolved itself in 1950, but about five months ago, Aslib had invited the Library Association to take part in a joint committee on documentary reproduction. The Library Association had agreed and the joint committee had held its first meeting in July, 1952.

In addition to these formal recommendations, the Conference had led to pre-occupation with university thesis literature. With the active help of the Committee of Vice-Chancellors and Principals of British Universities, and of the universities themselves, Aslib had decided to publish an annual index to theses for higher degrees accepted in the universities of the British Isles. The first volume, covering 1950-51, was about to go to press. Another project in the spirit of the conference which Aslib had supported warmly was the British Union Catalogue of Periodicals, while negotiations were being pursued with the Patent Office and H.M.S.O. to speed up the publication of patent specifications, indexes and abridgments.

As Dr. Urquhart had indicated, Mr. Wilson continued, the importance of the Royal Society Conference lay as much in the creation of a climate of opinion affecting information services as in the individual recommendations and their implementation. This greater awareness of the potential force of information services affected Aslib in two principal ways to-day.

WILSON : RESULTS OF THE R.S. CONFERENCE

First, Aslib had manifestly reached the stage when it must re-think its purposes and processes from first principles. It had started life as an Association of Special Libraries and Information Bureaux, representing one particular aspect of information work. That aspect might remain central to Aslib's work, but he believed it was now time for Aslib to develop into an association 'about' information at all stages from its presentation and publication through to dissemination and use. Secondly, as the papers of the present conference at Swanwick showed, science and technology were not the only subjects involved. The Aslib-F.B.I. Conference, in March, 1952, and the existence of an Economics Group of Aslib, had focused attention on the needs of the business world, especially in relation to market research and the sociological problems of industry. The plans already mentioned for a conference on problems of information in the humanities demonstrated Aslib's realization that much remained to be achieved in the arts. At the same time, the presence in the Chair on the previous day of Sir Stephen Tallents, well known everywhere as a person who touched the arts, business and industry at so many points, was yet another reminder that Aslib's true field was as wide as human knowledge itself.

Chairman's Remarks

MR. J. E. CUMMINS, M.Sc., F.R.I.C. (Chief Scientific Liaison Officer, Australian Scientific Liaison Office), who occupied the Chair at the fourth session, expressed his pleasure at being present at the Conference and thanked the Association for doing him the honour of inviting him to be Chairman of the session at which the results of the Royal Society Scientific Information Conference of 1948 were to be reviewed. Since that was, he said, the most important information conference which had so far been called, it seemed appropriate that he should briefly review some of the events leading up to it and should indicate broadly some of the effects which that Conference had had on international matters.

No doubt some of those present that day had attended, and were acquainted in some detail with, the Scientific Information Conference, but he doubted whether it was generally realized that the calling of that Conference had been recommended by an earlier conference called by the Royal Society in 1946, namely the Empire Scientific Conference. The idea of calling an Empire Scientific Conference had first been conceived in 1941, in the stress of war, and was, he thought, an indication of the virility, sanity and long-term planning of the British peoples.

Very careful consideration indeed had been given to the subject-matter of the Empire Scientific Conference and to the representation at it, and it was not until July, 1944, that His Majesty's Government in the United Kingdom approved the proposal and invited the Royal Society to be responsible for the organization of the Conference. Invitations were issued to each of the Dominions, and it was very pleasant to find that each and every one of them approved of the suggestions made. Although the arrangements for the Conference had been made during the heat of the last part of the war, it duly met on the appointed date, and many matters of common interest to the British Commonwealth were discussed by a large and representative gathering of scientists.

One of the most important questions before that meeting was that of scientific information services, and it was appropriate to mention the excellent paper given by the former Director of Aslib, Miss E. M. R. Ditmas, which, he was sure, formed a basis for later discussions held by representatives of science in this country and resulted in the present policy of the United Kingdom Government with regard to centralized scientific libraries.

The Conference discussed many aspects of the problem, and agreed that a better organization and much greater financial assistance for the various services were required.

It was thought that the subject of information was sufficiently important to warrant the calling of a special conference, and as a result the following recommendation was made :

The Conference invites the Royal Society at an early date to convene a conference of the libraries, societies and institutions responsible for publishing, abstracting and information services, in order to examine the possibility of improvement in existing methods of collection, indexing and distribution of scientific literature and for the extension of existing abstracting services. The conference would pay particular regard to the cost of such services and to the need for funds from Government sources for their support.

In the proposed Conference :

(a) representatives of the appropriate authorities in the Dominions, India and the Colonies should be included, together with observers from the U.S.A. ;

(b) the interests of scientists as users of scientific information should be especially considered ;

(c) consideration should be given to the abstracting of Dominion journals locally for transmission to the main abstracting bodies in the United Kingdom.

It would be seen that this earlier Conference laid down quite wide terms of reference and was well aware of the importance of information services in the development of science and industry, not only in this country, but throughout the British Commonwealth as a whole. It was also pertinent that the Conference recommended the attendance of representatives from the United States, the other large English-speaking country which was so closely associated with the Commonwealth in scientific technology and development.

Immediately following the Empire Scientific Conference there had been held an official British Commonwealth Scientific Conference, and, in fact, there had been a plethora of conferences. The last-named endorsed the general recommendation of the Royal Society Conference, but in addition recorded its opinion that such a discussion should be regarded as preliminary to a wider conference, invitations to which should be extended to the United States as well as to the operating agencies of the United Nations which were concerned with this subject. Both those recommendations were considered by the Council of the Royal Society, which, in November, 1947, decided to proceed with the organization of the Conference, the results of which were to be discussed that morning.

That Conference was held from 21st June to 2nd July, 1948, and the organizing committee could still be highly commended for the agenda prepared, the arrangements made, and the publication of the proceedings and papers. The volume which had been published was still, he considered, one of the standard references on the general subject of scientific information services.

Many recommendations were made, some of particular interest to Aslib and many of special interest not only to the British Commonwealth, but also to the world in general. Many of those recommendations would be discussed by the two speakers that morning, and he did not wish to mention any of them in particular until after the papers had been read. In his opinion, however, the results and the value which accrued from that Conference had all arisen from the first recommendation printed in the proceedings, namely :

The Conference invites the Royal Society to consider the constitution of a Standing Committee on Scientific Information Services. Such Committee, it is suggested, should be representative of the interests at the Scientific Information Conference and might assist in implementing the recommendations of the Conference to provide machinery for the interchange and co-ordination of ideas and information which will emerge from the British Commonwealth as a result of the Conference.

Without such a continuing body after the main Conference, no results comparable with those which had been attained would have been possible, and the experience which had been gained from such a Standing Committee pointed, in his opinion, to the desirability of having some such continuing body, with authority, when any further British Commonwealth or other large conference was held on matters which required subsequent follow-up action. Not only had this continuing committee, which was

RESULTS OF THE R.S. CONFERENCE

known as the Royal Society Information Services Committee, been instrumental in developing and creating interest throughout the British Commonwealth and the United States, but it had also worked closely with Unesco; and the results of the Royal Society Scientific Information Conference in 1948 formed the groundwork, and, in fact, the whole basis, of the subsequent world conference called by Unesco two years later.

The Royal Society Empire Scientific Conference in 1946 was opened by His late Majesty King George VI, who, in declaring the Conference open, said:

There is good reason to believe that the nearness of the war to the civilian population in their homes and in their daily lives has brought about an awareness of the power of the scientific method and a realization that what has helped to win the war will also be of service in making the world healthier, happier and more prosperous. We now have to make good the wastage of the last six years and restore our shattered economy, and scientific research must play a great part in reconstruction. We must see to it that the available resources both in money and man-power are efficiently applied.

The organization, development and utilization of scientific information services were an essential feature in the efficient application of scientific knowledge and of our scientific resources, and he wondered whether everything possible had been done in this field, in accordance with His Majesty's comment. He was not satisfied that all that could be done had been done, and he thought that there was much that an organization such as Aslib could still do. He hoped that after the papers had been presented there would be a general expression of opinion on that subject.

DR. D. J. URQUHART, Ph.D. (Principal Scientific Officer, Department of Scientific and Industrial Research), and MR. LESLIE WILSON, M.A. (Director of Aslib), then presented their papers under the general heading 'A review of the results of the Royal Society Scientific Information Conference, 1948'.

Discussion

THE CHAIRMAN commended the last sentence of Dr. Urquhart's paper to the particular consideration of the Conference. It was, he said, a challenge, which they should all think about: was Aslib to be an association of those who needed information as well as of those who knew where to get it?

Mr. Wilson had indicated very clearly the part which Aslib had taken since 1948 in implementing certain of the recommendations of the Royal Society Conference, and in his concluding remarks had pointed out—rightly, in the Chairman's opinion—that the whole field of human knowledge was of interest to Aslib. That should be borne in mind in the discussion, so that undue emphasis was not given to science when discussing the two papers.

MR. A. J. WELLS (British National Bibliography) asked permission to mention, before the meeting began to discuss the many points raised in the two papers, one activity with which Aslib had been associated which Mr. Wilson had not mentioned in his paper, but which was very much in line with the spirit of the Royal Society Conference, namely the establishment of the *British National Bibliography*. This, he thought, was a very flourishing example of an attempt to organize one of the largest fields of published material, and it was so much in line with the Royal Society's ideas that the Royal Society itself was a founder member, along with Aslib and other organizations. He felt that Mr. Wilson ought to have taken credit on behalf of Aslib for the part which it had played in establishing the *British National Bibliography*, which had now begun effectively to organize published material in book, pamphlet and similar monograph form.

In spite of what had been said the previous evening about the national library in this country and its apparent reluctance to go out to its users, it was, in fact, very much to the credit of the national library and of Mr. Francis and his staff that the *British National Bibliography* operated now as it did. Those who were on its staff knew how very much they owed to Mr. Francis for his enthusiastic piloting of their requirements through the British Museum and its various organizations, and also how much they owed to Mr. Francis's staff and to the British Museum for the information needed for the production of the *Bibliography*.

MISS BARBARA KYLE, speaking not for the Royal Institute of International Affairs, but as Honorary Secretary of Aslib, said that this was the first time that she had been moved to speak in public in that capacity. She wished to make some comments arising out of Dr. Urquhart's challenge and the remarks of the Director. She was never very clear, she said, what were the positive duties of an honorary officer of such a body as Aslib, but there was one thing which she regarded as definitely a duty, and that was to see that Aslib positively went in the direction in which the members wanted it to go, as they were Aslib, and that it did not go in a direction in which they might not want to go without their full knowledge and co-operation.

They should bear in mind that in the near future the Planning Committee would be considering the next five years' development of Aslib. In dealing with the challenge of Dr. Urquhart she wished to make an analogy which he might say was not a true one. That might be correct, but it would enable her to make her point. If he went to a meeting of the British Medical Association and said that it should become an association of patients he would receive rather astonished support, if, in fact, he received any support at all. Instead of Aslib saying that it wished to get the information to the user, she thought it should say that it wished to create and maintain a situation in which the information could be quickly got to the user. It might be difficult for it to do both, and it might be undesirable for it to divide its activities and both give information directly to people and at the same time try to be an association of those who were giving the information to people.

Of the activities which had been mentioned, some were on one side, some on the other, and some half and half. She was not taking sides on this question, but at each step they took they should consider whether they were acting in order to make it possible for information to get to the user or were themselves giving information to the user.

DR. D. J. CAMPBELL (Librarian, Royal Cancer Hospital, Chester Beatty Research Institute), on the subject of suggestions about what Aslib could do, drew attention to a restrictive practice which seemed to have escaped attention, possibly because it applied to books. When original information or, as was more frequently the case, a recension of a man's work over perhaps twenty or thirty years, was published in book form—originally it might have been published in unusual journals, not readily obtainable, so that even if the information was not original in the strict sense it was to all intents and purposes unknown previously—that book might come out in America, and for a week or two, or perhaps for two or three months, it might be available from America. Then the American publisher signed an agreement with a British publisher for the book to be published in Britain, and after that the work could not be obtained from America. The British publisher, however, took his own time about publishing it, and in the interval people would ask for it and want to know why it was not available; they would say, 'I have seen it and read it; why cannot we have a copy here?' It was only after a twenty-minute explanation of the mechanics of the publishing industry that they would acquit the librarian of being obstructive and standing between them and the book which they wanted to read.

He was not suggesting how that problem should be dealt with, but simply that it should be dealt with. It was a serious gap in the free transmission of information across frontiers.

MR. R. G. THORNE (Chief Information Officer, Royal Aircraft Establishment) thanked Dr. Urquhart and Mr. Wilson for their courage in accepting the invitation to speak on this subject, because he was sure that they were well aware that away down at the working level the results of the Royal Society Conference were often the subject of extreme scorn. This, he believed, only reflected a lack of appreciation of the problem, because the recommendations of such a conference were of necessity of a general nature, and rapid progress could not be expected.

Nevertheless, he and others did expect the Royal Society to produce a bulldozer which would demolish the obstructions in their path, and they had been extremely disappointed to read the paper given by Sir Alfred Egerton recently, in which it was stated that the Committee established to implement the recommendations of the Conference had completed its task, so far as it had been able to do so. It was true that

RESULTS OF THE R.S. CONFERENCE

that Committee had done some very useful work, but it was trivial when compared with what needed to be done.

A flaw in the Royal Society's arrangements for the Conference had been that the proceedings were mainly concerned with the problems of scientists engaged in fundamental work, and the applied scientists in industry were neglected; but, as had been clearly pointed out at the first session of the present Conference, the real problem which faced this country was not the fertility of the research worker, but the delay in transforming the idea into a marketable product. That had been confirmed at the British Association meeting recently held in Belfast.

The information services available to an industrial scientist to-day were still in general very poor, and a rapid solution of the problem was required. The schemes which had been suggested up to now were not sufficiently rapid. He believed that Mr. Wilson found one solution at the Aslib Conference two years ago, when the possibility of subject groups had been mooted. It was only by immediate practical co-operation between organizations with a common and fairly narrow subject theme that there seemed to be any hope of improving rapidly information services in industry. General schemes were also required, but they must not expect too much too soon, and the evidence at present made it seem that it would be necessary to wait a long while.

He would like to ask for further information on two recommendations. The first was recommendation 6.1, the Standing Committee on Abstracting. Was any move to be expected to establish better co-operation between the various abstracting agencies? The second was recommendation 12.1, the Committee on Classification, about which he would make the same observation.

THE CHAIRMAN suggested that on specific points such as those raised by Mr. Thorne it would help the discussion to obtain an opinion from the two speakers.

DR. D. J. URQUHART said that the original recommendation of the 1946 Royal Society Empire Scientific Conference included the statement, with regard to the Scientific Information Conference, that 'The proposed Conference should deal with the interests of scientists as users of scientific information'. The Council of the Royal Society, when it considered this proposal, said that the discussion should be limited to considering the subject only from the point of view of use and service to the scientific community. It was perhaps unfortunate that that restriction came about, but it was undoubtedly the scientific method to try to break down a problem into its component parts, and his main thesis had been that this particular problem, the supply of scientific information to the scientist, had, in fact, been fairly completely reviewed and that there had been some progress, so that what was now required was a conference to tackle the wider and more difficult problem of the supply of scientific information to the ultimate user in industry. So far as that was concerned, he was fully in agreement with Mr. Thorne that a great deal remained to be done, but the fact should not be overlooked that something had been achieved and that one problem had been exhaustively reviewed.

Mr. Wilson had mentioned the committee on the mechanized distribution of information. In fact, that committee had been set up by Aslib before the Royal Society Conference, and they produced a paper in which they tried to summarize their ideas on the subject for the Royal Society Conference. After that they rather faded away.

In reply to Miss Kyle, he had not taken sides between the two points of view which she put forward, but, continuing her analogy of the British Medical Association, it would be appropriate for that Association, as, in fact, they did, to consider, not merely the status of their own members, but the Health Service of the country as a whole and how the interests of the patients could best be served. The question which the members of Aslib should consider was whether Aslib should concern itself with the information services of the country as a whole and how the needs of the ultimate user could best be met, in exactly the same way that the B.M.A. would consider the needs of patients.

MR. J. B. REED (Technical Administrative Officer, Library and Publications Department, British Coal Utilisation Research Association) said that the D.S.I.R. were to be commended for the experimental work which they had undertaken. There was, he believed, a tendency in some quarters to give only grudging acknowledgment to this, but the acknowledgment should be generous. In particular, a great deal of credit was due to Dr. Urquhart.

Miss Kyle had invited an expression of views on future trends. Personally, he was glad to see that Aslib was growing, but he hoped that it would not grow in such a way that it would come to lack cohesion, because if it did there would inevitably be fragmentation. He felt that what mattered first in information work was the kinetic aspect and not the systematic, and the kinetic side rested on the individual information officer. The first concern of Aslib, therefore, should always be with the information officer and the circumstances in which he found himself and the difficulties with which he had to deal, including, of course, systematics, but bringing those into their proper relation to him.

In taking that view, he did not apologize for harking back to a remark made the previous day by Mr. Farradane. Mr. Reed would not put the point of view, which he thought they both shared, in quite the same way. There was not the slightest doubt that the Royal Society Conference was specific in its recommendation on the rank and status of information officers. Recommendation 11.1 said that 'Early recognition should be given to the conclusions of the Conference in regard to the rank and status of information officers and special librarians', and that was followed by the statement that all possible encouragement and assistance should be given to the Library Association and to Aslib in the work of defining and raising the level of training, qualifications and status of information officers and special librarians.

Personally, he shared the Director's strong dislike for 'rank' and 'status' and would prefer the spirit of that recommendation to be applied rather than the letter. He thought that what was essential was to make some attempt to declare what were the pre-requisites for an information officer to be really effective in information work. First of all, he thought that there should be a division between the information officer and the special librarian. Rightly or wrongly, he would say that the information officer was more concerned with the use of information than was the special librarian, and, therefore, he should be first and foremost a specialist in the subject, or at least in a part of the subject, which he was endeavouring to serve. Secondly, he should have a reasonable understanding of the techniques and tools of information. Thirdly, he should be in such a position as to be aware of the reasons why his service was required. He should be in a position to know what his company really needed and to know what the effects of his work were. He should be in a position to inject his work into the right spot. It was at that point that status came in; it was perfectly proper to discuss the status and place of the information officer after the first essentials had been dealt with.

The Director had indicated the ways in which Aslib had done something, but they were, after all, very minor ways, and it was time that some attempt was made to declare what were the pre-requisites for good information work.

MR. JASON E. L. FARRADANE (Scientific Information Officer, Tate & Lyle Research Laboratories), referring to the problem raised by the Director of the direction in which Aslib was going, thought it was true to say that that had been and still was a very confused issue, but it had to be crystallized into words. He did not think that it was good enough to go ahead in the hope that it would crystallize itself. Aslib could be a professional association and should be able to do a good deal in that direction. If objection were taken to the words 'status' and 'qualifications', they could talk first of telling industry about the potential value of the information officer and state his capabilities, not speaking of qualifications at this stage, because that savoured of discussing a diploma.

Secondly, Aslib could function as a research association in finding out and disseminating techniques and furthering new ideas, and it could function as a learned society, a repository of information and a means of getting information. If, however, it were to go on to the next job, the passing on of information to the user, on a large scale, he agreed with Miss Kyle that there was a danger of setting up an enormous machine which would result in Aslib becoming a mere distribution agency. Great care would, therefore, have to be exercised about what was done in that direction, but so far as the other three possibilities were concerned he would like to see them very clearly defined in the light of Aslib's future, so that there might be conscious direction.

THE CHAIRMAN said that his own experience as an information officer, and having now been in the United Kingdom for a number of years, led him to feel that to raise

RESULTS OF THE R.S. CONFERENCE

the status or capabilities of the information officer and special librarian was only one part of the task ; the bigger part was to educate the employer—both the governmental and the private employer—to understand the value that these people could be to him. Until that was done, it would be very difficult to raise the status of the individual officer.

MR. FARRADANE explained that that was what he had in mind in using the words 'potential value'.

DR. D. J. CAMPBELL pointed out that Aslib was an organization covering all the sciences and technologies, and in many of the spheres with which it was concerned information officers simply did not exist at the moment, and their functions were carried out by librarians. It was not possible to have an organization primarily to aid the information officer which at the same time took all knowledge for its field.

MR. A. H. HOLLOWAY (Ministry of Supply) said that if the status and emoluments of information officers were to be raised, there were two ways in which it could be done. One way was that, as had just been suggested, employers should be educated, but there was another and by no means less important way, and that was that there should be more and better information officers. This was a matter of training. A large number of information officers were present at the Conference, but very few of them, he thought, would have been trained as information officers. He did not know of any considerable source of training for the work of an information officer. They were all, or nearly all, converted chemists, converted physicists, converted engineers or converted librarians.

It was a deplorable state of affairs that in this country engineers and physicists, and, he hoped to a lesser extent, chemists, were being turned out with scarcely any knowledge either of the literature which existed or of how to use it. He thought that that applied to a lesser extent to chemists because he had himself been trained as a chemist, and the field of chemical literature was, he believed, more intensely cultivated than any other technical field. A chemist, if he were to do any good, must have a certain knowledge of the literature, but too many chemists were turned out without any adequate knowledge of it. Dr. Urquhart had mentioned the noble example of the University of Delft, which was now starting a system of introducing its students to the technical literature and the right way to deal with it. Mr. Holloway thought that that was a unique pioneering effort, and, when this statement was greeted with cries of dissent, remarked that he had come across very few signs of any systematic introduction to the literature. He hoped he was mistaken in that view, but it was essential, if there were to be better information officers, either that there should be a proper system of training them as such or all technical people should be given a systematic introduction to the literature, its nature and the methods of dealing with it.

MR. LESLIE WILSON, replying to the discussion on this point, said that in his paper he had deliberately skated very lightly over this whole problem, though there was hardly any subject connected with information work which he enjoyed arguing about more, or about which he argued more vehemently. It was most important to remember—and he was sure that Mr. Farradane did not disagree with Mr. Cummins on this point—that it was not the information officers who defined the status which they occupied ; it was the world outside, the employers and users of their services, and, in fact, one might say almost anyone but themselves. That must never be forgotten. They might say that they were demigods, and he hoped that they all thought that they were, but it was what the other person thought that really counted.

With Mr. Reed he agreed entirely, notwithstanding anything that he had already said, that there was an urgent necessity within the profession itself to define not such vague ideas as status, which were bound to be comparative, but those qualities which were a basic necessity for the effective information officer. He would like to throw out, on his personal responsibility and without committing Aslib in any way, the suggestion that there were three headings under which this question ought to be considered.

He would say that the first requirement of an effective information officer was a knowledge of his subject, which he would further define by saying that the aim should be a graduate profession, with a general university level of attainment in the special field within which the information officer expected to practise. Of his second and

third points it was difficult to know which to put first, but on balance he would give practical experience as the second point. He was certainly not one to decry paper qualifications and examination attainments, but he placed on the highest possible level the value of practical experience under normal workaday conditions. In addition, therefore, to being a graduate with special knowledge, the information officer should, before he could claim to be an information officer in the real sense of the term, have undergone a period of not less than three years, and preferably as much as five, of practical experience in an information department in the field in which his special qualification lay. Thirdly, as Mr. Reed had said, a certain minimum knowledge of techniques was necessary. That was very briefly and all too inadequately his general view of the position towards which they should work.

This did, of course, tie up very closely with the other recommendation of the Conference, concerning training within the universities. The fact that he had mentioned graduation and special knowledge obviously implied that he thought that the universities themselves had a heavy responsibility in this matter, and for every person reading for a degree there should be, throughout the normal university course, systematic training in the literature of the subject and in the means of utilizing the bibliographical tools and elementary information techniques appropriate to that subject.

Mr. R. D. RARES (Borough Librarian, Acton Public Libraries) said that there seemed to be two essential factors: first, the speed with which the information could be obtained and, secondly, its cost. So far as speed was concerned, it would be difficult to get the information quickly if it were necessary to go from anywhere in the country to a central department to get it. The information was usually required in a hurry, and the sooner it was obtained the more value it had. That suggested that the best method would be to regionalize the sources of information, so that it would be possible to draw on those regional sources quickly and easily instead of having to go through a central department. As a last resort it might be necessary to go to a national institution, but when it was necessary to go some way to get, for example, a periodical in which one was interested, even the time occupied in the post might be too long for it to be of value when it arrived.

In every area there were obviously certain sources of information. Almost all large firms had their own information officers or librarians, and if they could be grouped together in areas of reasonable size and would co-operate in passing on information—especially on marginal subjects, which were probably the most difficult—a service would be obtained which would be far more expeditious than could be given in any other way.

On the question of cost, it seemed to him that the extension of information services generally would be expensive if arranged on a national basis, but there were the public libraries, which were rate-supported. Every firm in the country paid a certain amount in rates to a local authority, even though they might obtain a relief of 75 per cent. of their rates, and they should expect something in return for what they paid. Many public libraries were far behind the times, but that was due mainly to the ratepayers not demanding or expecting a decent library. One would not get what one did not demand.

To take a particular example of what he had in mind, in West London, as also in North London, there was a scheme by which the public libraries of the area had grouped themselves together and sought the co-operation of the libraries belonging to large firms in the area for the passing of information through the central pool of the public library of the area to anyone who required it. In West London they had been particularly fortunate in having a large industrial area, and the firms in that area had very willingly come into the scheme. In the field of periodicals, for instance, over seventy firms had added their list to a union list of periodicals, and all these periodicals could be seen by anybody in that area. If a firm which was interested in films wanted some information on metals, it could telephone to Acton to find out where the periodicals were in the area and would be able to see them. That was an immediate service and was a way round the difficulty of cost. The firms, as ratepayers, should be induced to demand a service which would cost very little, taken over a large area.

Miss R. M. JACOBS (Department of Scientific and Industrial Research) said that the

RESULTS OF THE R.S. CONFERENCE

British Museum Library, though the largest special library in the country, was at present of very little use to the others. No one could admire Mr. Francis more than she did, and she knew that he had done all he could to promote the British Museum to the position to which he alone could promote it, but the discussion which had taken place at the Conference indicated that more was required from the British Museum than was being obtained at present. It was not a question of large expenditure or of great buildings or of anything of that kind; their position was so marginal that if they could get another £10,000 from the Treasury it would be of immense value to the country. She would like Aslib to consider the possibility of doing something concrete and active, and in 1952, about the British Museum.

MR. F. A. SHARR (Deputy City Librarian, Manchester City Libraries), referring to Mr. Wilson's suggestion that one of the important functions of Aslib was to find out what research workers, industrial users and others wanted, canalize their demands and bring them to the notice of Government departments and other authorities, said that some members of the Conference had been thinking during the week-end that Aslib had effectively brought a searchlight to bear on the Patent Office and on the Science Library, but had not so far shed any beam on the greatest national library, the British Museum. He asked the Conference to pass the following resolution on the subject:

That this Conference welcomes the co-operation which the British Museum has given and is giving to special and learned libraries, but regrets the delays which occur in the provision of photographic and microphotographic copies required for research and industrial development.

The Conference, therefore, requests the Council of Aslib to investigate the matter and to draw the attention of the responsible authorities as a matter of urgency to the services needed for research and national productivity and the deficiencies in the present services of the British Museum.

He hoped that the Conference would pass that resolution unanimously, because he felt sure that the British Museum would be the first to welcome such a prod.

The resolution was seconded, and, following cries of 'Vote!' the Chairman put the resolution to the meeting, and declared it carried unanimously.

MR. E. ALAN BAKER (Librarian, Ministry of Food), speaking as Chairman of the Library Association Committee set up as a result of the Royal Society Conference, and referring to Dr. Urquhart's point about training in the use of bibliography and libraries, said that they had sent a memorandum to the Committee of Vice-Chancellors on the question of training at undergraduate level, on which action had been taken.

Mr. Thorne had raised the question of the need for a national scheme as well as for Aslib subject groups. Many members of the Conference would have seen the *Interim report on the co-operative provision of books and materials* in libraries which appeared in the *Library Association Record* of December, 1949. This scheme, which was only in embryo, and which was very much a long-term project, was open to everybody, and was planned as a national scheme with no restrictions whatever. He thought that that *Interim report* would repay study.

On the question of the rank and status of the special librarian and the information officer, there seemed to be a growing tendency, which he deplored, to regard the special librarian as a type of hack who could collect material but did not know how to use it or for what purpose it was used. That was completely unsound.

MR. R. C. WRIGHT (Librarian, Royal Aircraft Establishment) said that Mr. Baker had already made two of the points which he had intended to make. A good deal of time had been spent in discussing the functions, status and training of information officers, which, though important, were not the main theme of the session. The question for decision was, were the members of Aslib as a whole satisfied with the progress made by the Royal Society Information Services Committee? Were they satisfied that the proposals of the 1948 Conference had, in fact, been implemented to the full, and, in particular, what had the Royal Society done about the proposal that scientists and technicians should receive instruction in the use of information services as part of their normal training?

If they were not satisfied on those points, what ought they, as members of Aslib,

to do about it? Ought they to press the Royal Society to take further action, or did they propose to do part of the job themselves?

THE CHAIRMAN said that Mr. Wright had raised a question which time did not allow the meeting to consider, except in a very general way. It was, however, exceedingly important, and the Conference might, therefore, wish to give a general direction to the Council to consider the very pertinent points which Mr. Wright had raised, so that the Council could consider, perhaps, sending a recommendation to the Royal Society to say that they felt that the closing down of the Information Services Committee was a little premature, and asking the Royal Society to reconsider the whole question. Would the Conference agree that the Council of Aslib be asked to look into these matters on its behalf?

The Conference agreed.

THE CHAIRMAN expressed the sincere thanks of the Conference to Dr. Urquhart and Mr. Wilson for their papers.

HOME TOURING AND EMERGENCY SERVICES OF THE AUTOMOBILE ASSOCIATION

BY R. CANN EVANS, M.A.

Touring Manager of the Automobile Association

THE Automobile Association is a private organization maintained by members' subscriptions. It exists solely to give service to its members. I am sure you all know this, but it seems right to start this paper by reminding you of it because many people regard the A.A. as a cross between a public service and a nationalized industry. This is probably because certain things which we do, and are in a unique position to do, are not attempted by anyone else. We have learnt by many years of experience the best, or what seems to us to be the best, way of dealing with various problems with due regard to economy of both labour and money.

Our home touring service began soon after the formation of the A.A. in 1905. We came into existence solely with the object of fighting what we considered to be the unfair enforcement of the twenty miles speed limit which then applied to all private cars and motor cycles on all roads at all times. But that is another story. Side by side with the growth of the A.A. there arose a demand by members for services other than those of the A.A. patrols on the road. One of these was for what we now call routes. Members used to write and ask us how to get from London to Birmingham or Liverpool or Edinburgh. Directions and advice were first given by individual letters, but quite soon, because journeys were made so frequently to the same place, we developed a system of route cards, on which were written the names of the towns and villages to pass through. These could be copied in long-hand by clerks who had never been in a motor car and who knew nothing whatever about the roads. The system which we use to-day to provide our members with routes is still essentially one which enables someone with no knowledge of the actual roads, but who understands our method, to draw on our forty-five years of experience and so to provide a route which is 100 per cent. accurate, reliable and up to date.

Now how is this done? Well, like all other systems it is simple enough when you know how it works, and probably the most easily understood explanation is that it is all based on a series of spider's webs. Imagine a town such as Guildford, or, as we are now in the Midlands, we will take Derby. The centre of the web is Derby and each of the main strands of the web leads out from the centre to the surrounding towns. Derby to Nottingham, Derby to Matlock, Derby to Ashbourne, and so on, either a long or a short strand according to where the towns are, but each road radiating outwards from Derby is a strand terminating at another town. And each of these other towns is itself the centre of another spider's web, so that the whole country is covered by a series of webs. This means that by using suitable strands from the different webs you can put together

a complete journey of several hundred miles in a few minutes with perhaps twenty or thirty strands in it, the individual strands representing a distance of anything from 15 to 40 miles. So that, leaving our pattern of spider's webs, we have a complete series of lengths of road leading from one place to another, all meticulously measured and described. This information is recorded on what we call a route sheet and we have a route sheet for every strand of all the spider's webs. In addition, each route sheet has a strip map showing the road, and, following our latest development, each now has a little plan, a 'thumbnail' town plan, in fact, of the terminal point. These maps and plans are drawn so that the user reads them from the bottom upwards, in other words, in the direction of travel. In this way, which is the most easily understood of all methods of presenting maps, a right turn is seen and visualized as a right turn, straight on is straight up the map, and so on. Incidentally, the number of people who can read a map drawn in the conventional way with the north at the top, when they are themselves coming southwards down the map, is far fewer than one might suppose in these enlightened days. There are now well over 6,000 of these road lengths and corresponding route sheets, but from this point of view, that is numbers, each length of road counts twice, because the directions for a road from A to B are by no means the same thing as those from B to A. Nowadays, to save paper, and also because it gives a better service, the sheets are printed back to back, that is to say, the route from A to B is printed on one side and from B to A on the other, so that when it is turned over a journey from London to Liverpool, for example, becomes one from Liverpool to London. But the two sides are treated and indexed as separate identities.

The index is a combination of the alphabetical and numerical. I mentioned Ashbourne just now. Ashbourne to Derby is numbered A.111, Derby to Ashbourne is D.71; the starting point gives the letter and the numbers follow in sequence. Sometimes we make exceptions to this rule, but if so we always work to a simple principle. The sheet itself is always known by its alphabetical and numerical seniority, by which I mean the earlier letter and the lower number. That is, the Ashbourne-Derby sheet which, of course, is Derby-Ashbourne on the other side, is stored always and referred to on the stock-cards as A.111. If two towns both begin with the same letter, then the lower number is taken. There is an alphabetical index of sheets and one of them is available to every member of the staff who acts as what we call a 'compiler'—that is, the person who compiles the details of the routes asked for in the letters and telephone calls received from members. Suppose, for example, we get a request for a route from London to Liverpool. The letter goes to the desk of a compiler. On the letter, if there is a blank space, or a piece of paper pinned to it, he writes down a series of towns which are really a telegraphic form of the route. In this case it would be H.P.C. (Hyde Park Corner), Swiss Cottage, Mill Hill, St. Albans, Towcester, Atherstone, Gailey, Newport, Whitchurch, Chester, Liverpool, or if the member wanted to go through Birmingham it would be the same as before to Towcester, thence Coventry, Birmingham, Wolverhampton, Newport, etc.

EVANS: SERVICES OF THE A.A.

A.III.

Y107

A wide main road slightly undulating with
ascent (1-12) from Ashbourne.

Miles

ASHBOURNE.

Leave by Derby Rd.

(A.52).

6

Brailsford.

Kirk Langley.

4½

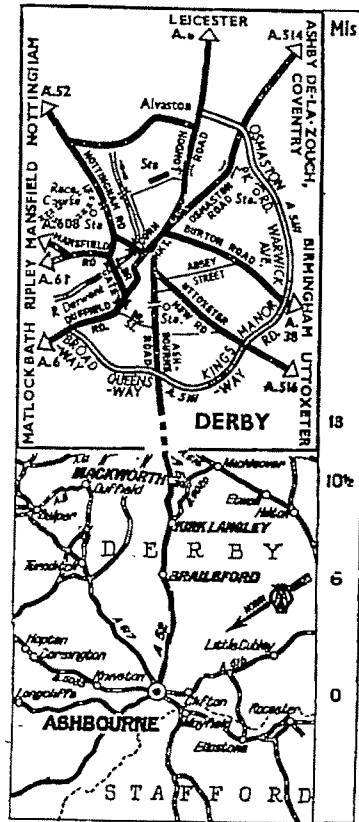
Mackworth.

By Ashbourne Rd. enter

2½

DERBY. (Plan-Open Fold.)

(By-pass available.)



D.71.

Y507

A wide main road slightly undulating with descent (1-12) to Ashbourne.



DERBY.

Leave by Ashbourne Rd.

(A.52).

24

Mackworth.

Kirk Langley.

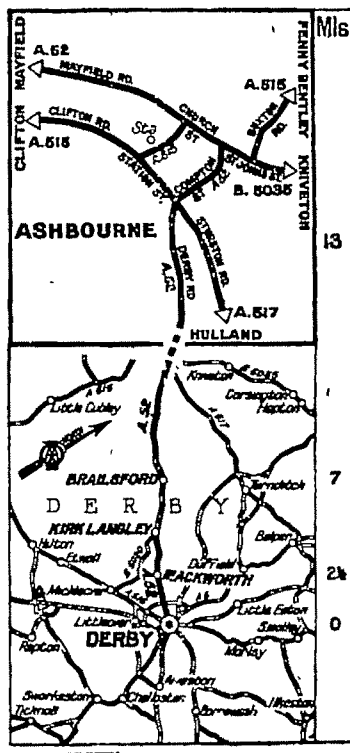
43

Brailsford.

By Derby Rd. enter

8

ASHBOURNE.



EVANS : SERVICES OF THE A.A.

Normally we choose the route we think most suitable, having regard to road conditions, roads under repair, or any special preference the member may have expressed. If the destination is a village which is a short distance off the line of the route on one of our sheets, the compiler writes any special directions or instructions which are later typed on the sheet and the irrelevant printed portions of the sheet are struck out. Each compiler has a set of master sections in a turntable—one turntable between each two compilers—so that he can check the detail on any sheet without having to move from his desk, and he has as well on his desk a transparent celluloid sheet under which is a small scale map of the whole country which has on it a series of red dots, each red dot being the centre of a spider's web, but known to compilers as 'section points'. He has also a set of half-inch to the mile maps for detail work, and a special series of small scale maps showing the recommended cross-country routes from some thirty-two centres in England and Wales and four in Scotland. As far as possible everything is visual, because we find that staff are trained to this work more quickly if everything is there for them at a glance. That is one of the objects of the celluloid sheet mentioned a moment ago. Not only does it keep the section point map clean, but if anything suddenly happens somewhere, a crisis, such as the Lynmouth disaster, or a bridge down somewhere, it can be marked in chinagraph pencil on the underside of the celluloid sheet, where it stays as a constant reminder until it is rubbed off again. The celluloid is, of course, fitted in such a way that the marks stay above the part of the map to which they refer.

From the compiler's desk the route goes to the 'picker-out'. Not a very good word, but it does describe exactly what happens next. The route sheets are kept for use in bins. Each bin stands about 3 ft. high, is about 3 ft. 6 in. across and 3 ft. from front to back. Three bins hold a complete set of sections with ten to twenty sheets of each section. The sheets are stacked in upright rows and are arranged in a purely alphabetical sequence. The various sheets, ten or twenty of the same sheet, are sandwiched between what we call guide cards, which project above the sheets for half the width of the sheet. The starting town, that is the centre of the web, is kept on the left and the name is printed on the left-hand half width of guide card which projects above this sheet. The terminal towns have their cards with the extra half width projecting above on the right, so that looking along the rows in the bins the left side of each row along the top have a few guide cards projecting upwards representing the spider's web centres or starting points, and the right-hand half has a considerable number each with a place name in alphabetical order representing the terminal points. At one time numbers only were used, but the alphabetical method is easier to use and makes it easier for the picker-out to spot a mistake. Obviously the right-hand name on the guide card of the last sheet picked out will be the left-hand name of the next one. After that any special typing is done, including the addressing of the envelope, the cover is put on the route, separate town plans added, the mileage totalled on the adding machine and finally it is checked, put in its envelope and away it goes.

There is, of course, much more, but I understand that the purpose of this paper is to explain HOW and not WHAT, and I hope you have understood my description of HOW. We keep a Master Section of each length of road and on that are put any changes, alterations or additions for the next printing. We have about 20 million sheets in stock at any one time, but that is an ordinary story of bins and stock-keeping similar to other storage methods.

That I hope gives you a rough idea of the methods we employ to provide our 1,200,000 members with home touring service.

The other part of the title of this paper is 'Emergency Services of the A.A.' In London, at the A.A. Headquarters in Leicester Square, we operate an Emergency Service and Information Bureau. Those of you who remember the winter of 1927 may recall that for several weeks, including Christmastide, roads all over the country were covered in snow up to 2 or 3 ft. deep in many places. The demand for rescue services we then received convinced us that as a service organization we could never again close down at 5.30 each night. So the Emergency Service was introduced and from then on it has always been possible to contact the A.A. Headquarters, at Fanum House, London, at any hour of the night and obtain prompt assistance and advice about any motoring problem. Even Hitler couldn't interrupt this continuous service, although he nearly succeeded when his Luftwaffe dropped a land mine in Leicester Square. To-day it has grown up into one of our major activities, which deals with an average of 750 telephone calls a day and copes with over 2,000 enquiries about the state of the roads a day during bad weather periods and other crises. The bureau itself, which is maintained during normal office hours, is a large room in which there are ten extension desk telephones operating by light signals at a circular table. Each operator can take any call on any of the ten incoming lines. He has in front of him a turntable moving right round the table, which contains the most frequently used records, and above this an independently mounted revolving drum about 5 ft. in diameter, on which are maps relating to special events, parking places in London, road detours, and other things as occasion demands. General information of all kinds is available in a Shannograph Filing System. The records maintained are :

Places of interest open to the public.

Motor and motor-cycle clubs throughout the British Isles.

Car hire firms throughout the British Isles.

Details of A.A. appointed garages throughout the country in loose-leaf folders.

A.A. hotels, and those with special facilities.

Charts showing Continental boats full on certain dates in so far as car space is concerned.

1 in., $\frac{1}{2}$ in. and $\frac{1}{4}$ in. maps, etc.

Ferry lists and Home Touring information.

An extensive library of town and country guide books, many with detailed street plans.

A comprehensive library of books on motoring throughout the world,

EVANS : SERVICES OF THE A.A.

and specialized matters such as reference books to assist in finding the location of churches, places of interest, schools, cemeteries, hospitals, etc.

A set of the most commonly used reference books is maintained for each two operators.

The emergency weather information service is one of the principal functions of the information bureau, and it is the focal point for the reception and collation of information which is passed to it from all over the country relating to roads affected by adverse weather conditions of all kinds—snow, ice, fog, flooding, trees down, etc. The information is gathered by the A.A. patrols and passed by them to a 'Pivotal Point'. This is an A.A. box chosen as a collecting centre because of its convenient geographical position. The pivotal point passes the information along to its area office or perhaps to another pivotal point, which in turn passes it to the area office. We learnt very early that telephone congestion is a very real danger on these occasions, and so certain offices, again usually for geographical reasons, are known as report centres and receive information from one or more other area offices and in turn pass it on to the information bureau in head office. At such times telephone lines are apt to be not at their best, and to save confusion and time, and to avoid place names, each length of road is given a code number and a letter prefix which indicates the area concerned. The notification is passed by code number as far as the road is concerned, the details, i.e. fog, snow, deep snow, impassable, etc., by word, using a standard or uniform series of description.

At both the information bureau proper, in London, and at all A.A. area offices the roads affected are marked on specially prepared maps in chinagraph pencils, which allows hour by hour changes to be recorded. The area offices exchange information with adjoining areas, and head office compiles a country-wide report in general terms which is passed back to each area, so that this system works both inwards and outwards. Subsequently, general reports on weather conditions are issued to the Press and the B.B.C., and many thousands of queries from members are answered.

The information bureau staff also deal with those members who break down and who telephone us for help. This is provided either by telephoning a garage and arranging mechanical first-aid, or at night and in the London Postal District by contacting one of our own radio-equipped vehicles and instructing it to go to the member's assistance. Experience shows that there can be a high degree of skill in coaxing from someone who only has the vaguest idea of where he is enough information to tell someone else how to get to him. Practice makes perfect, and some of our staff are extraordinarily skilful at this. We have a 60 ft. high aerial on the roof at Fanum House for the radio link with the vehicles and another transmitter on high ground at Hampstead, the use of which has improved reception and contact generally.

The information bureau is also equipped with an exchange telegraph tape machine for Meteorological Office weather forecasts and information

generally, and also with a teleprinter connected with the Central Telegraph Office to ensure prompt handling of the many telegrams and cables received. The information bureau, as I have said, operates during normal office hours and is followed by the emergency staff, which performs precisely the same functions at night and at week-ends.

We get asked almost everything, and here are three queries which have come in recently :

Where can one buy garden netting in Holland ?

Where can one buy an ocean-going liner ?

Where can one get a pedigree bull-dog ?

Chairman's Remarks

MR. E. N. SIMONS (Publicity Manager, Edgar Allen & Co., Ltd.), the Chairman of the fifth session, introducing the speaker, said that Mr. Cann Evans was the Touring Manager of the A.A. and had been with that organization for about twenty-seven years. His guiding influence had been very marked in many of their activities, and he was entirely responsible for the beautiful thumbnail maps in the A.A. *Handbook*.

MR. RONALD CANN EVANS, M.A. (Touring Manager of the Automobile Association), then read his paper entitled 'Touring and emergency services of the Automobile Association'.

Discussion

THE CHAIRMAN, in inviting discussion, said that he had been a little puzzled by some of the indexing systems which Mr. Cann Evans had described, and he thought that Dr. Bradford, had he been present, would have said that it was a case for the U.D.C.

MRS. D. LOMAN (Department of Scientific and Industrial Research) asked what the present membership of the A.A. was and what relationship the number of questions bore to the membership and how many came from outsiders.

MR. CANN EVANS replied that the present membership was over 1,230,000. It was almost impossible to check over the telephone whether those who asked questions were members or not, and it was often quicker to reply than to spend time verifying that the questioner was a member. The Association issued about 750,000 routes in the course of the year, and that, apart from the patrols, was the biggest service which the members asked from it.

MISS BARBARA KYLE (Royal Institute of International Affairs) referred to the fact that the indexing of roads was done by a number and that the patrols referred to what happened to the roads by a code, and asked whether the code bore any relation to the indexing number and whether either was related to the ordnance survey numbers.

MR. CANN EVANS said that the code used by the information bureau was an arbitrary one, based on what might be described as the 'nuisance value' of the road, since certain roads were more troublesome than others. It was purely an internal means of conveying information and had nothing to do with the Ministry of Transport road numbers. The numbering of the roads which was used for the indexing of route sheets was not, therefore, that followed by the emergency service, and there would be no advantage if it were.

MR. JASON E. L. FARRADANE (Scientific Information Officer, Tate & Lyle Research Laboratories) suggested that if a car broke down and the driver did not know where he was, the telephone number which he used to call the A.A. should be a sufficient indication.

MR. CANN EVANS agreed that that should be possible, if one had a list showing the location of all the numbers.

MR. VERNON D. FREEDLAND (Information Officer, British Hat and Allied Feltmakers Research Association), who remarked that most telephone boxes were marked with their location, asked whether there was any objection to the ordnance survey grid method of identifying a location being used.

EVANS : SERVICES OF THE A.A.

Mr. CANN EVANS replied that the national grid of the ordnance survey was used by the A.A. in its *Handbook*, which gave an explanation of how to employ it. It would be impossible to apply it, however, for the identification of a street in London without both parties having very large scale maps. There was not much difficulty in finding a man who was five miles out of Matlock on the road to Derby ; it was when he was lost in London, for instance, that there was trouble. They had been patted on the back by the Ordnance Survey for making use of the national grid, and had received furious denunciations from members who could not understand why they took up such new-fangled notions. The older members did not like the grid, while the younger ones regarded it as child's play. They were trying, without giving up the grid, to combine the virtues of both methods.

Mr. B. AGARD EVANS (Chief Librarian, Ministry of Works) said he understood that the route between Ashbourne and Derby was number A.111 from Derby to Ashbourne and D.17 in the other direction, and one was printed on the back of the other. How did the pickers-out select the sheets ? Were there two sets, one under A, and one under D ?

Mr. CANN EVANS explained that the picking-out was done visually ; part of the card projected above the level of the material in the bin, and on the left-hand projection of the card was the place from, and on the right the place to.

The A.A. did not supply its *Handbook* to libraries, because it existed to help those who paid for the services given by subscribing. It was sometimes difficult to draw the line in the public interest. They would give information to Government departments and similar bodies who asked for it, and to the Press.

Mr. C. W. HANSON (British Scientific Instrument Research Association) asked why people wanted routes given to them. If he came to Derby by car, he remarked, he would not want a route. Was the number of those requiring routes increasing in proportion to the number of cars, or falling off as people became more accustomed to use simple maps in a country which was exceedingly well sign-posted ?

Mr. CANN EVANS said that he did not know all the reasons why people asked for routes, unless it was that they were the simplest and most convenient form of directions available. There were also the busy people who liked someone else to do the work. The routes contained town plans, which were useful, and gave the exact mileage, which many people liked to have because they based their journey on it. Many people said they would not undertake any journey without an A.A. route, while others say 'Why bother with them ?'

Mr. A. H. CHAPLIN (Assistant Keeper, British Museum, Department of Printed Books) asked for a little more information about the methods of collecting and recording certain kinds of information, particularly that needed to ensure that the routes were up to date and that information about roads under repair and obstructions was included right up to the day when the route went out. Did the Association rely on its patrols, or was it able to get advance information from the authorities responsible for road maintenance ?

Mr. CANN EVANS said that in addition to the information from patrols, the highway surveyor, if undertaking a big programme, would often ask for a diversion to be sign-posted or other special signs provided, and he would get in touch with the area office, who informed headquarters. It would not be possible to inform members of every minor diversion or every short stretch of road under repair, because it would be difficult to find a hundred mile stretch of road which did not include some sections under repair. In general, the information was obtained well in advance, and its value was to take the weight of traffic away from a road which was being repaired. Since the proportion of motorists using A.A. routes was small, the routes themselves did not have much effect, but the diversion signs did.

Asked whether it was not time for the R.A.C. and the A.A. to get together, instead of duplicating the same sort of work, he remarked that he was used to that question. The stimulus of competition might well be of value, and if the two organizations joined together it would mean the loss of an advantage which existed at present ; namely that there were two large, independent bodies to prod the Government into

doing something about roads. In any event monopolies—and an amalgamation would produce a monopoly—were unpopular in these days.

MISS M. D. GAUNTLETT (Kodak, Ltd., Research Library) asked whether Continental routes were compiled in the same way and by the same pickers-out, and how information was obtained from the Continent about roads under repair, bridges, and so on.

MR. CANN EVANS replied that the Continental information originated in the same way as that relating to this country, by somebody going over and 'logging' the roads. After that, reports were obtained from staff who went over from time to time and from the reports of members. With each foreign route sent out a slip was enclosed asking for comments and information. The same compiling technique was used.

Asked how many pickers-out were employed to compile 1,400 routes a day, and how long it took to do one route, he said that in London, to deal with up to 1,400 a day, there were about a dozen compilers and thirty pickers-out. Each route took an average of twenty minutes. When greatly pressed it was possible to omit a few small details, such as the addition of the mileage, which the user could do for himself.

MR. R. L. W. COLLISON (Reference Librarian, Westminster Public Libraries) inquired whether, since public libraries did not want route cards or emergency services, but did want the *Handbook*, the A.A. could make arrangements by which they could pay even what might seem an exorbitant amount to get it.

MR. CANN EVANS emphasized once again that the A.A. was a purely private organization. There was a demand for the *Handbook* from non-members. The A.A. could not sell it to them, and to give a copy to every library would cost several hundred pounds for each issue. He understood that the printers were compelled by law to supply copies of certain of their publications, and possibly of them all, to the British Museum and certain other libraries.

MR. N. L. R. SHERET (I.C.I., Plastics Division) asked how the A.A. kept its information about hotels up to date, and mentioned that in South Wales he had seen the A.A. sign on some hotels which were not mentioned in the most recent edition of the *Handbook*.

MR. CANN EVANS replied that the hotel information was printed once a year. It was a task of considerable magnitude, because every one of the 1,236,000 members was entitled to a copy. When a hotel which displayed the sign was not in the *Handbook*, it was probably because it had been appointed since the printing of the last edition. When an appointment was terminated, the hotel was not allowed to retain the sign. They sometimes tried to do so, but it was nearly always collected within two or three months.

MR. H. E. ROWLSON (Librarian, Headquarters Lending and Further Education Section, Nottinghamshire County Library) said that almost every day they were asked for manuals of older cars, not necessarily of English makes. Sometimes these could not be supplied from their own stock or by other libraries, but in many instances they knew that the inquirers were members of the A.A. What assurance could they be given about getting these old manuals from the A.A. library?

MR. CANN EVANS said that the Engineering Section of the A.A. had a very considerable library of old manuals, and where it was possible to do so would part with them on loan to members who needed them. They were reluctant, however, to part with the last copy, but they would certainly give the information required, if it was available and sometimes they had the manual photographed for a member. There was always a greater supply of elderly motors cars than of manuals on servicing them.

MISS A. A. GOUGH (Home Office) inquired how the work was divided out between the different people who made up the routes, and whether there were specialists in certain routes.

MR. CANN EVANS replied that the simple routes were given to people who might be classed as 'improvers', and there were a few high-powered people who could deal with the most intricate questions of Scottish ferries and so on, because they knew what they were talking about. Most of their people had been with them a long time, and the vast majority of the routes were quite simple.

THE CHAIRMAN, in thanking Mr. Cann Evans for his paper, said that in this kind of service the A.A. was ahead of the rest of the world and an organization of which it was possible to be justly proud.

VOTES OF THANKS

MR. B. AGARD EVANS (Chief Librarian, Ministry of Works) said that the Conference was the one high-light of the Aslib year, when the members came together as a body in a body for the only time in the year. It gave them an opportunity to thank the various people who had contributed to the growth and vigour of Aslib. The present was the 27th Conference. Every one of those Conferences had been, so far as he was aware, a success, and he hoped and believed that the present one was no exception.

The strength and vigour of Aslib depended, and had depended ever since 1924, on the voluntary efforts of quite a large number of people, and on their enthusiasm, which were canalized through the various Committees of Council. Those people gave up time and thought in the interests of the members generally and tried to follow out their ideas.

There were three things that he wished to do. The first was to thank the Conference Committee who, under the chairmanship of Mrs. Lancaster-Jones, had brought the present Conference into being, who arranged the very active and interesting winter meetings of Aslib, and who had been able to attract such talented speakers and chairmen. In thanking the Conference Committee, he asked the members to bear in mind the other Committees who were doing voluntary work at headquarters and in the Northern, Scottish and Midland Branches, and helping to make the groups a success.

Secondly, although he had put the emphasis on the voluntary side, that would have been no use without the permanent staff and secretariat. They would all agree that in their Director they had found a man who was a personal friend, a balance wheel to keep them on the right track, and an enthusiast in his own right in carrying on the work in which they were particularly interested. With the Director, of course, went the excellent staff which he had built up and gathered round him, together with those who had carried on from the older organization. They would like to couple with the Director's name the mention of the name of Miss Anne Turnbull.

Thirdly, there were those who had ministered to their comfort at The Hayes, and to whom they were very grateful.

The votes of thanks were carried by acclamation.

EXHIBITION NOTES

By C. E. C. HEWETSON

Consultant, Ashb

ANY account of the exhibition at this year's Conference would be incomplete without some mention of the purpose for which these exhibitions are held, and their limitations.

For several years now the Conference and Meetings Committee has felt that members attending the Conference would appreciate the opportunity of examining any new equipment of particular application in the field of documentation. With the limited accommodation usually available, and in view of the considerable difficulty which many manufacturers find in fulfilling the large number of exhibition commitments which already exist, it is obviously only possible to display a very limited range of products at any one time.

The Addressall Machine Co. exhibited two small machines, designed primarily for addressing purposes. These machines produce individual copies or lists, as required, from unit stencil masters prepared on a typewriter. These masters are mounted on card frames which also carry, for identification, a printed version of the text appearing on the stencil. The masters can be stored in any convenient order and are then fed into the machine from a stack and returned to storage in the same order after use. Lasting copies can be expected, being made in a specially compounded ink of the duplicator type.

It is unfortunate that these machines are at present limited to producing copies from masters which are too small to cover fully a 5 in. by 3 in. card. But for this fact they would provide an ideal solution to the problem of reproducing unit catalogue entries. Where short entries only are required the present stencils might prove adequate and there is hope that in the course of time a larger version will be produced. That the interest of manufacturers in this possibility is growing is shown by the experimental work in which they have co-operated with the *British National Bibliography*.

Against an attractive background of illustrative material, copies of the various issues of the *British National Bibliography* were exhibited by the Editor, Mr. A. J. Wells. Considerable interest was shown in the efforts which Mr. Wells is making towards the production of catalogue cards from the printed entries in the *B.N.B.* If it is possible to secure satisfactory equipment to enable the work to be undertaken economically it seems likely that this object will be attained. Mr. Wells is to be congratulated on his pioneer work in this direction and for the increasing interest in the needs of librarians which it is producing among the manufacturers of office equipment.

A further example of equipment designed for office use which might be utilized in libraries was the continuous stationery exhibited by W. H. Smith & Sons, Ltd., in the Alacra series. Although the pre-printed forms with pre-interleaved carbon paper are capable of producing a large number of copies, exactly registered, at one typing operation, it is doubtful if such equipment will find application in any but the largest libraries where the output of work is considerable. In such cases the cost of adapting a typewriter by the fitting of the specially designed sprocket feed patent and the necessary pre-printed forms might well be justified by the economies effected.

The use of continuous stationery can advantageously be used in feeding other types of office machinery such as teleprinters, addressing and tabulating machines.

A further product of this company, which may find more general application in libraries, is the Registrator. Two forms of this are available. The larger not only provides working copies of instructions written on the pre-printed forms stored in the machine, but, after they are ejected to provide a fresh form for the next operation, can store a continuous length of copies in the machine for control purposes. The smaller machine, the Alacra Portable Register, is, as its name implies, sufficiently compact to be carried comfortably by the user. To achieve this no provision has been made for the storage of control copies. In libraries this equipment might well be used for recording telephone messages, enquiries and loans. At least one library has adapted equipment of this type to the latter purpose and it is understood that the results have

HEWETSON : EXHIBITION NOTES

been entirely satisfactory, avoiding the need for books of loan forms with the attendant drawbacks of loose slips of carbon paper. One sheet of carbon inserted in the machine each day is sufficient to produce copies of all loans recorded during the day in a busy industrial library.

Duplicators of various kinds find very wide applications in special libraries and were well represented.

The spirit duplicating process in various forms was exhibited by Block & Anderson, Ltd., who showed both full-sized duplicating and addressing equipment, and a small hand-operated device intended primarily for addressing work. In all these machines the master is prepared by typing the original on a specially prepared paper using either a prepared carbon paper or typewriter ribbon. Copies are produced from this original image by applying a thin film of spirit solvent to the material on to which the copy is to be made and pressing it into contact with the master.

In the small hand-operated device, the Bandarette, the spirit is applied by a felt pad, automatically moistened, which is carried on a handle. Below this pad is a small roller with which the master is pressed into contact with the material on to which the copy is to be made. The masters are inserted into a card frame which, like those used in the Addressall equipment described above, can be stored for future use.

The Renadress machine uses similar framed masters but provides for fully automatic operation from a stack of masters which are re-stacked in the correct order as used.

Other equipment demonstrated by this company included the Banda 90 duplicator, which is a cylinder machine producing copies from 1 in. $\times$ 3 in. to 9 in. $\times$ 14 in. Both hand- and power-operated models are available. A feature of this model is the automatic pick-up of the master which considerably speeds up the process of preparing the machine for work.

Rotary stencil duplicators were exhibited by Ellams Duplicator Co., Ltd., and Roneo, Ltd.

Ellams Duplicator Co., Ltd., were exhibiting the D.100 cylinder duplicator. A feature of this machine, which can be either hand- or power-operated, is that the feed stack is limited to 150 sheets. The manufacturers claim that this is advantageous in simplifying the feed mechanism.

Also exhibited by this company was a variety of general office equipment, including a collating device which should prove a boon to those concerned with the issuing of library and abstract bulletins and other publications. Avoiding the tedious operation of collating from stacks of sheets spread out along a table top, this economically priced piece of equipment accommodates vertically eight stacks of sheets. A finger-moistening pad is located at the base of the collator and the gathering of the eight sheets is rapidly undertaken. One operator with two such collators is able to assemble rapidly up to sixteen sheets whilst remaining seated.

Roneo, Ltd., exhibited the latest '500' Series II duplicator which is the most up-to-date version of a by now well-known machine. The small hand-operated '150' machine, which folds compactly for carrying, was also exhibited. A feature of these machines is that, unlike earlier models, they may be automatically fed with paper or card of small area, thus making them suitable for work on a 5 in. $\times$ 3 in. card.

Of particular interest were examples of library documents produced on the '500' Series II machine using Roneo Electronic stencils. These stencils are produced by the company from customers' originals. The stencil image is produced electrically by scanning the original by means of a photo-electric cell. Scanning is at 500 lines to the inch and, therefore, the resolving power of the system is high, permitting reproduction from textual matter, line or tone work. Owing to the method of producing the stencil, multi-colour work with extremely accurate registration is possible.

The folder distributed to those attending the Conference contained examples of various library forms and a book-plate produced by this method.

Also of interest were examples of catalogue cards produced on a Roneo '500' machine, using economy stencils, in Lindsey and Holland County Libraries, and a brief description of this work by the county librarian, Mr. A. C. Curtis. As short entries only are required it is possible to accommodate three on one economy stencil, which is cut into three after typing. Each of these pieces is used separately on the duplicator, the

exposed parts of the cylinder being suitably blanked off. Where more extensive entries are required it would probably only be possible to accommodate two entries on each stencil. It should be remembered that this technique is only applicable to the Series II '500' as on other models the feeding of 5 in. $\times$ 3 in. cards is not possible.

Roneo, Ltd., were also exhibiting an addressing machine which uses stencil masters of the standard size for this type of work.

Leaflets available also showed the company's activities in the field of library furnishing.

Also in the field of duplication was some interesting equipment of a more modest nature supplied for exhibition purposes by Harry Sinclair, Ltd. This was the 'Numer-stamp' outfit, consisting of two hand stamps provided with felt pads which are saturated with a special ink, a supply of which is included with each outfit. Two sizes of stencil are provided, giving a printing area of 2½ in. $\times$ 1 in. and 4½ in. $\times$ 2 in. for use on the appropriate stamp pads. Both handwriting and typing stencils are included in the outfit, together with a writing plate and stylo for the former. Although the typing area of the larger stencil will not completely cover a 5 in. $\times$ 3 in. card it has obvious possibilities as an economical method of reproducing catalogue entries.

In the more general field of office equipment there were several exhibits of interest.

The exhibit arranged by Ofrex, Ltd., showed a very wide range of small office equipment and supplies. Apart from general stationery requirements, such as carbon papers, stencils and typewriter ribbons, there were several items of particular interest to members. Chief amongst these must have been the wide variety of stapling machines shown. These ranged from the smaller hand type to special purpose machines such as that which is used hammer fashion to drive staples into boxes in order to affix lining paper and labels. The smaller machines are more likely to find application in libraries. An interesting feature of many of the machines shown was that provision is made to eject damaged staples without the necessity of dismantling the machine. Despite the robust construction of these machines, which leads to the conclusion that it would be difficult to damage them, they are guaranteed for periods from twelve months to ten years, according to the type. Two models in particular deserve special attention. The first is a large hand-operated machine which takes three sizes of staple, shank sizes being ⅝ in., ⅞ in. and 1 in. This enables one machine to handle stacks of paper up to ½ in. thick and yet be used for smaller work with the shorter staple to maintain a neat appearance. Also available is a centre stapling machine in which the operating head is at right-angles to the supporting arm permitting stapling in the fold of documents of any width.

A further product of interest manufactured by this company is a reinforcer which at the same time as punching filing holes strengthens each hole with a patch of self-adhesive tape. This is particularly useful when dealing with flimsy paper which may otherwise tear away from the filing supports. If required, the reinforcing device can simply be made inoperative and the machine used as a standard punch.

In the more specialized field of filing was the exhibit of Moore's Modern Methods, Ltd. Here were displayed many versions of the company's well-known loose-leaf post binders and pre-printed forms for use therewith. The smaller versions of these have found application in many libraries for use as sheaf catalogues owing to the high storage capacity of some 200 to 250 sheets per inch. This effects a considerable saving compared with the equivalent number of standard index cards. There is a wide range of form sizes from 3 in. $\times$ 6½ in. (equivalent to a 5 in. $\times$ 3 in. card) upwards. Binders are available to accommodate all the sizes of form produced and in the case of the smaller sizes two thicknesses are available, taking either 200 or 400 sheets. Cabinets are available for the storage of binders equivalent in size to either 5 in. $\times$ 3 in. or 5 in. $\times$ 8 in. cards, and the manufacturers claim a 50 per cent. saving in cost and a 66⅔ per cent. saving in space as compared with the conventional card index.

Owing to an unfortunate loss in transit it was not possible to display Raillex Filing Equipment, manufactured by Frank Wilson & Co. In this system the files are suspended, by special hooked plates attached to the spine of the file, from rails which run lengthwise along filing cupboards and may be affixed below shelves in existing equipment. Small desk units are also available. The advantages of this system appear to be that owing to the method of suspension the contents of the file, not being subjected to any

HEWETSON : EXHIBITION NOTES

pressure by the weight of the file as in drawer filing, are less liable to become damaged. A further great advantage over drawer filing is the economy in cost and space effected, as no expensive and bulky filing cabinets are needed. Guides are available for attaching to the visible edge of the file when suspended, thus securing the advantage of visible indexing.

Amselock (Filing and Records Equipment), Ltd., were showing a range of Amselock single-drawer interlocking steel filing cabinets. A feature of this equipment is that although the drawers are produced in certain standard sizes they can be built up to form a variety of compact units. This building up is not confined to the drawers themselves, but also to their internal arrangement. By means of interlocking divisions within the drawer itself it can be divided to take cards and other indexing units of a wide variety of sizes. For example, the 503 drawer will accommodate 8 in. $\times$ 5 in., 6 in. $\times$ 4 in. or 5 in. $\times$ 3 in. cards. In the case of 5 in. $\times$ 3 in. cards a single drawer, 22½ in. wide by 28 in. deep will accommodate 6,000 lightweight cards. Accessories such as desk tops enable the drawers to be built into working units and it is possible in this way to house several thousand cards within easy reach of an operator. One installation illustrated in the company's literature is of a built-up unit, including a desk-top which accommodates 45,000 8 in. $\times$ 5 in. cards within reach of an operator seated at the desk. Drawers are also available to accommodate boxes of microfilm and foolscap and quarto files.

Photographic methods of documentary reproduction were well represented. In the field of microfilm were the Pilgrim microfilm reader and Ediswan microfilm readers.

The first of these was shown by Visual Communications, Ltd., together with examples of various types of visual aid materials, including wall diagrams and film strips. For the latter accompanying printed notes were also exhibited. The Pilgrim microfilm reader, as many members will already know, was developed in collaboration with one of Aslib's recent Vice-Presidents, Sir John Forsdyke, K.C.B. It is primarily intended for the use of bed-ridden or disabled persons and for this reason is remotely controlled. The reader can be set up to project an image on to any suitable flat surface such as a wall or ceiling. The control unit can be operated by the user even when lying in bed, and consists of a small metal box connected by a length of flex to the reader.* The unit contains a small on-off switch and two small levers, depression of which effects film transport in a clockwise or anti-clockwise direction, according to the lever operated.

The Ediswan microfilm readers demonstrated are probably too well known to members to require detailed description. Both the Model I and II were shown. Various degrees of magnification can be secured by fitting alternative lenses to the optical system. The film gate can be rotated to handle material printed either vertically or horizontally. Both loose strip film and that on reels can be handled and for the latter an automatic gate can be attached to certain models. This gate secures rapid film transport by the operation of a small handle on the front of the attachment and also avoids scratching of the film during transit, as the gate is automatically opened on commencing film movement. In conditions of high ambient illumination reading can be made easier by the attachment of a mask designed to fit these readers. The company were also exhibiting pochettes for filing strips of film. Each pochette accommodates ten strips of the international standard length of 209 mm. and thus provides storage for the microfilm equivalent of 100 pages of text.

Two types of full-size photo-copying equipment were exhibited, both using diazo sensitive material.

Ilford, Ltd., were showing the Azofelx K.10 machine with associated equipment. This machine accommodates originals up to 14 in. $\times$ 10½ in. and will produce copies from single sheets or books up to 4½ in. in thickness. Either transmission or reflex copies can be made with equal facility, although in the latter case a transparency must be prepared in the first place. This transparency is itself readable, being a positive image on a transparent base and not a transparent image on an opaque base as in most silver processes. Herein lies the major difference in technique between diazo and silver sensitive materials in that positive copies are produced from positive originals. The speed of copying is high and processing is equally rapid, being carried out in a small electrically-driven developing unit which dispenses with the need for processing

dishes and is very economical in consumption of developer. Owing to the low sensitivity of the material used, work can be carried out under normal lighting conditions. The whole of the equipment necessary can be housed on a table or desk. As the illumination is by means of a mercury vapour lamp some minutes are required for this to reach operating conditions and, therefore, maximum efficiency can be obtained when running batches of work rather than when producing odd copies throughout the day. The prints are only slightly damp after processing and can be handled immediately.

The equipment exhibited by the Ozalid Co., Ltd., the Ozalapid, whilst making use of diazo sensitive material, differs in several respects from that described above. The latest printing unit is of the flat-bed type and accommodates up to double foolscap size originals. The hingeing arrangements permit printing from bulky documents such as books. In this unit the illumination is provided by instantaneous striking high-intensity fluorescent tubes and, therefore, printing can be commenced immediately on switching on the equipment. A filter can also be used to enable the same printer to be used with silver photographic material in the production copies from normal reflex document copying papers.

In this equipment single diazo reflex copies can be produced from one printing operation, no intermediate transparency being required. A special negative paper is used and after exposure this is passed through the compact electrically-driven developing unit together with a sheet of positive transfer paper. These emerge in a moist condition and in perfect contact. After 45 seconds they can be separated, the original negative paper being destroyed as it has no further use, leaving a positive copy which, although slightly damp, can be handled immediately. Where more than one copy is required a transparency is prepared and subsequent copies produced by exposure through this on to normal diazo paper.

An attractive feature of the diazo process is the facility with which transmission copies can be produced from single-sided printed or typewritten documents, at a speed in proportion to the opacity of the paper carrying the original text, without the necessity for producing an intermediate negative or positive transparency.

Equipment which may not immediately appear to be applicable to library and information work was exhibited by James Harwood, Ltd., in the form of tape and wire recorders. Members were able to see and hear both types of equipment in operation. As this equipment has been applied to dictation work it would seem that it might be most valuable to literature searchers and others in recording references and abstracts available in other libraries, thus avoiding the waste of time involved in copying such material in longhand, for subsequent typing in their own organizations. Certain recorders are fitted with a footage indicator which makes the location of specific items of information a simple matter. An existing application which is made possible by this refinement might well open up a future development for documentation work. In certain organizations where a standard invoicing procedure is in use the operators refer to card indexes to locate the relevant position of the necessary information on the record, which is then run rapidly through the machine until the correct point is reached. At this point reproduction is commenced and the operator carries out the verbal instructions contained on the record.

Erasure is possible on both tape and wire recordings and the chief merits of the latter are long playing time per reel and long life of the base material.

No Aslib Conference Exhibition would be complete without displays of purely library equipment and books. On this occasion we were again glad to see Mr. Francis, of Luxfer, Ltd., with a display of steel shelving and photographs showing libraries equipped by this company.

Books in wide variety were exhibited by Bailey Bros. & Swinfen, Ltd. Of particular interest to members were a number of technical dictionaries and a selection of F.I.D. publications.

HEWETSON : EXHIBITION NOTES

NAMES AND ADDRESSES OF EXHIBITORS

Addressall Machine Co. 11 Southampton Row, London, W.C.1.	Luxfer, Ltd. Waxlow Road, London, N.W.10.
Amselock (Filing and Records Equipment), Ltd. 33 Kinnerton Street, London, S.W.1.	Moore's Modern Methods, Ltd. 20 Farringdon Street, London, E.C.4.
Bailey Bros. & Swinfen, Ltd. 26-27 Hatton Garden, London, E.C.1.	Ofrex, Ltd. Newman Street, London, W.1.
Block & Anderson, Ltd. 58-60 Kensington Church Street, London, W.8.	Ozalid Company, Ltd. (Ozarapid Division) 62 London Wall, London, E.C.2.
The British National Bibliography The British Museum, London, W.C.1.	Roneo, Ltd. 17 Southampton Row, London, W.C.1.
Edison Swan Electric Co., Ltd. 155 Charing Cross Road, London, W.C.2.	Sinclair, Harry, Ltd. 74 Manley Road, Manchester, 16.
Ellams Duplicator Co., Ltd. York Chambers, King Street, Nottingham.	Smith, W. H., & Sons, Ltd. Alacra Factory, Western Avenue, London, W.3.
Harwood, James, Ltd. Derwent Street, Derby.	Visual Communications, Ltd. 17 Denbigh Street, London, S.W.1.
Ilford, Ltd. (Azoflex Department) 104 High Holborn, London, W.C.1.	Wilson, Frank & Co. 11 Lackington Street, London, E.C.2 ; and P.O. Box 19, Southport.



INDEX

VOLUME 4, 1952

- Abstract services, 118, 136, 249
Abstracting journals, 130
'Action taken by Aslib to implement the conference's proposals', 241-5
Addressall Machine Co., 266
Advisory Council on Scientific Policy, 233
—, Scientific Library and Technical Information Committee, 233, 242
Alacra Portable Register, 266
Allibone, Dr., 235
Alphen, P. M. van, 156
American Documentation Institute, 46, 237
American Institute of Physics, 126
American Standards Association, 51
Amelock (Filing and Records Equipment), Ltd., 269
Anglo-American Council of Productivity, 195
Appleton, Sir Edward, 20
Arden, L. L., 223
Ascarelli, F., 47
Ashthorpe, H. D., 58
— 'The punched-card indexing experiment at the library of the Atomic Energy Research Establishment, Harwell, 101-4
Aslib, 18, 20, 42, 167-78, 239-40, 241-5, 248, 249, 250
— Branches :
—, Midland, 1, 57-8, 176
—, Northern, 1, 58, 111, 176
—, Scottish, 1, 19, 176-7
— Conferences and meetings, 170, 265
—, Annual General, 5, 167-78
—, Birmingham, 1, 25-31, 57-8, 87-94
—, Edinburgh, 1, 18-24
—, Leicester, 1, 3
—, London, 57, 59-86, 111, 113-20, 153-62
—, Manchester, 58, 95-100
—, Sheffield, 111, 121-51
—, Swanwick, 183-271
—, exhibition, 266-71
—, list of delegates, 185-94
—, votes of thanks, 265
— Document Reproduction Service, 168
— Education, 170, 171
— Finance, 168-9
— Index of Translations, 4, 36-8
— Information Bureau and Library, 171-4
— International Relations, 174
— Junior Study Course, 20, 22
— Membership, 169
— Panel of Translators, 4
— Patents Sub-committee, 84, 124
— Publications, 174-6
— Relations with other organizations, 178
— Staff, 178
— Subject Groups, 177, 249
—, Aeronautics, 184
—, Engineering, 184
—, Textiles, 184
— Winter meetings, 57, 59-86, 111, 153-62, 265
Association of Special Libraries and Information Services, 183
Atomic Energy Research Establishment, 58, 101-4
'Autolibrarian', 129
Authors' abstracts, 235
Automobile Association, 255-64
Azofelx photo-copying equipment, 269
B.B.C. v. British Broadcasting Corporation
Baily Bros. & Swinfen, Ltd., 270
Baker, E. Alan, 253
Baker, E. C., 170
Balbis, B., 47
'Banda' spirit duplicator, 128, 267
'Bandurette' spirit duplicator, 267
Beck, G. N. J., 50
Bell, Bainbridge, 83
Eellamy, John G. F., 'Setting up a translations index', 36-8
Bennett, E. M., 57, 73, 85
— 'Searching classified patent specifications', 75-82
Berkeley University library, 224
Bernal, J. D., 106, 117, 123, 233
Bibliographical references, 52
Bibliothèque Nationale, 163-4
Biske, V., 223
Bland, B. M., 1
Block & Anderson, Ltd., 267
Bodleian, 54
Bonl, A., 155, 157
Bonser, Wilfrid, 1
Boodson, K., 58
— 'Information services at work', 87-94
Booksellers' Association, 3
Booth, A. D., 129
Boots' library, 125
Bourgeois, P., 44, 45, 46, 47
Bradford, S. C., 9, 107, 233
Brenner, Helen, 170
Bridgland, Alderman T. W., 111
Briet, S., 44, 46, 47, 48, 52
Brisch, E. G., 210, 211
British Broadcasting Corporation Reference Library, 57
British Cast Iron Research Association, 19
British Commonwealth Scientific Mission, 135
British Commonwealth Scientific Office, 36
British Commonwealth Scientific Official Conference, 36, 246
British Cotton Industry Research Association, 16
British Council, 4, 175, 229, 237
British Institute of Management, 208
British Jute Trade Research Association, 19
British Museum, 39, 41, 54, 132, 180, 220-4, 247, 253
British National Bibliography, 247, 266

INDEX

- British National Committee on Documentation, 174, 244
British Red Cross Society, 39
British Standards Institution, 50-2
British Travel and Holidays Association, 229
British Union Catalogue of Periodicals, 53-5, 112, 179-81, 244
Brown, D. G., 23
Brown, G. L., 116
Brugghen, W. van der, 43, 44
Cain, J., 44, 45, 46
Camerani, V., 47
Campbell, D. J., 123, 248, 251
Carlson, Professor, 209
Carlson, W. H., 135
Carnegie Endowment, 163-4
Carnegie United Kingdom Trust, 41, 42
Carter, E. J., 48, 58
Catalogues, 33-5
Central Office of Information, 132, 229
Chaplin, A. H., 263
Charmes, Pajot des, 97
Chemical Abstracts, 11
Chesters, J. H., 111
Chitnall, Bernard, 57, 170, 183, 232
— 'Shell Film Unit Stock Shot Library', 59-68
Chicago Central Reference Library, 214
Circle of State Librarians, 133
Classification, 5-12
Cobians, H., 44, 45
Colchester Public Library, 216
Collison, Robert L., 183, 222, 264
— 'Information services in public libraries', 213-224
Committee on Technical Information Services, 118
Copyright, 235
Courtaulds, Ltd., 'Technical Information Bureau', 5-12
—, Use-development Organization, 13-17
— Patent Department, 72
Cummins, J. E., 184, 245-7, 250-1, 254
Curtis, A. C., 267
Cyrillics, transliteration of, 51
D.S.I.R. *see* Department of Scientific and Industrial Research
Daily Mail library, 57
David, C., 44
Davison, Geo. H., 83-5, 86, 111
— 'The working of an industrial library', 121-31
Delft University, 251
Department of Scientific and Industrial Research, 15, 17, 36, 148, 175, 200, 201, 206, 249
— *Unanswered Questions*, 117
Dippel, C. J., 156
Ditmas, E. M. R., 245
Documentation, 105-8
Drake, Howard, 170
Dubuc, R., 47, 49
Dunsheath, Percy, 170
Duplicators, 267-8
Duyvis, F. Donker, 44, 46
Ediswan microfilm reader, 269
'Editola', The, 61
Egerton, Sir Alfred, 111, 248
— 'Information and industry: a general survey', 113-20
'Electrocard', 129
Ellams Duplicator Co., Ltd., 267
'Emidicta', 128
Elton, Sir Arthur, 57, 66
Engel, Erwin, 49
English, Walter, 99-100
Evans, B. Agard, 23, 66, 85, 86, 132, 207, 209, 211, 237, 263, 265
Evans, Luther, 44, 221
Evans, Ronald Cann, 183
— 'Home touring and emergency services of the Automobile Association', 255-264
Exeter City Library, 216
'Exhibition (1952) notes', 266-71
F.B.I. *see* Federation of British Industries
F.I.D. *see* International Federation for Documentation
F.I.D. Informations, 43
Fair copying declaration, 117, 235
Farmington Plan, 220
Farquharson, J., 111
Farradane, J. E. L., 204-5, 208, 209-10, 250, 262
Fayol, Henri, 202
Federation of British Industries, 111, 170, 196, 200
Festival of Britain, 225-32
Filing, 268
Film libraries, 59-68
Fondation Nationale des Sciences Politiques, 163
Foreign books and periodicals, supply of, 3-4
Forsdyke, Sir John, 2, 269
— 'Microfilms for the Disabled', 39-40
Foskett, D. J., 112
— 'Stitching of bulletins', 165-6
Francis, F. C., 221-2, 247, 253
Frank, Otto, 175
Frauendorfer, S., 47
Freedland, Vernon D., 184, 206, 209, 262
'French official documents', 163-4
Fulcher, Gordon S., 109
Fulford, J., 66
Gale, A. J. V., 57
Gallo, A. G., 47
Gauntlett, M. D., 264
Gianni, E., 47
Gilfillan, G., 200
Godefroid, Arthur, 49
Gosset, M., 1018
Gough, A. A., 264
Government libraries, 132-3
'Government library—with special reference to the library of the Safety in Mines Research Establishment', 132-8
Government publications, 217
Gravell, F. W., 74, 82, 83
Greenwell, Allan, 133
Guide for the preparation of synopses, 118

- Hammond, Muriel E., 54, 180
 Handlen, E., 23, 176
 Hannon, Sir Patrick, 176
 Hanson, C. W., 85-6, 206-7, 209, 263
 Harrison, N. K., 161
 Harrod, L. M., 132
 Harwood, James, Ltd., 270
 Havelka, M., 49
 Herbison, Miss Margaret, 1, 18-19, 177
 Hewetson, C. E. C., 67, 232
 — 'Exhibition notes', 266-71
 Hickman, Frank, 133
 Higginbotham, W. H., 111
 Holloway, A. H., 160, 224, 251
 Holmstrom, J. E., 58, 233
 Huntress, E. H., 119
 Hurd, J. C. H., 1
 Ilford, Ltd., 269
 Imperial War Museum, 132
 Index of Technical Translations, 56-7, 244
 Indexing, 5-12
 'Information and industry: a general survey', 113-20
 Information officers, 25-31, 150, 205, 208-10, 238, 250-2
 Information service, 5-12, 87-94, 117, 142-3
 'Information services at work', 87-94
 'Information services in public libraries', 213-24
 'Information services of the Festival of Britain', 225-32
 Institution of Mechanical Engineers, 115
 Intelligence officers, 20-4
 International Association of Music Libraries, 47
 International Building Documentation Council, 46-7
 International Council of Archivists, 48, 107
 International Council of Music Librarians, 48
 International Federation for Documentation, 43-9, 105-8, 174, 183
 International Organization for Standardization, 43, 50-2
 Iron and Steel Institution, 115
 Jacobs, R. M., 86, 252-3
 Jenkinson, Sir Hilary, 58, 105, 108
 John Crerar Library, 214, 215
 Kayser, F., 135
 Kendall, Professor James, 18, 177
 Kent, F. L., 52
 King George VI, 247
 King, A., 45
 King, D. W., 132
 Kuipers, Dr., 154, 159
 Kyle, Barbara, 112, 170, 210, 231-2, 248, 249, 250, 262
 — 'French official documents', 163-4
 Lamb, J. P., 111, 140
 Lancaster-Jones, J., 174, 265
 Lancour, H., 170, 171
 Lang, H. R., 57
 Lee, M. O., 47
 Le Maistre, C., 44, 45, 46, 47
 Lemaître, Henri, 175
 Library Association, 3, 22, 118, 125, 175, 220, 243, 244, 250
 Lightfoot, John, 100
 Lindsay, H. R., 85
 Lindsay, M., 57
 Lines, Kathleen, 40
 Lloyd, G. A., 43, 47, 50
 Loman, D., 262
 Lorphèvre, G., 43, 44, 46, 47
 Luxfer, Ltd., 270
 Manchester Public Library, 16, 219
 Martin, Lowell, 213
 Mathys, H. R., 57, 75, 82, 85-6
 — 'Patents as a source of information', 69-74
 Matthew, T. U., 183, 204, 207-9
 — The significance of information in present-day industrial society, 195-212
 Mercer, John, 100
 Meyer, J., 44, 45
 Micro-bibliography, 105
 'Microfilms for the Disabled', 39-40
 Micro-opaques, 111-12, 153-62
 Microprints, 153, 155-7, 161
 Milnes, Florence, 57
 Ministry of Fuel and Power, 133, 135
 Mitchell, J., 162
 Moholy, L., 39, 67-8, 161
 Möller, Arne, 44, 46, 47
 Moore's Modern Methods, Ltd., 268
 'Moviola', The, 62
 Nash, P. W., 111
 — 'Technical information services', 147-51
 National Book League, 170
 National Central Library, 41-2, 125, 132, 134
 National Film Library, 66, 68
 National Library of Scotland, 54, 132
 National Research Development Corporation, 196
 Newberry Library, 214
 Nicholson, A. L., 122
 North-East Institute of Mining Engineers, 115
 Novar, C. de, 49
 'Numerstamp', 258
 O.E.E.C. *see* Organization for European Economic Co-operation
 Ofrex, Ltd., 268
 Öhman, Einar, 49
 'Operational research on the author catalogue', 33-5
 Organization for European Economic Co-operation, 195, 201
 — Mission No. 90, 174
 Ozalid Co., Ltd., 270
 Ozarapid automatic developing machine, 127-8, 270
 Panizzi, 223
 Parke, V. E., 'An intelligence officer in industry', 20-4
 Patent Office, 69 *sqq.*, 124, 157, 233, 236, 242, 244

INDEX

- patents, 69-86
- 'patents as a source of information', 69-74
- 'periodicals, layout of, 51
- , abbreviations for titles of, 51-2
- 'pilgrim' microfilm projector, 2, 39-40, 269
- pilgrim Trust, 39
- into, O., 44, 45, 47
- lant, Marjorie, 170
- 'Supply of foreign books and periodicals to the libraries of the United Kingdom', 3-4
- ondron, P., 47
- ollard, A. F. C., 9
- 'oolle, L. R., 160, 161, 162
- 'ower, Eugene B., 39, 160, 161
- 'reparation of manuscript, 116
- 'reparation of Synopses', 109-110, 118
- 'rojected Books Incorporated, 39
- 'ublic Record Office, 228
- 'ublic libraries, information services, 213-24
- 'ublishers Association, 39
- 'unched cards, 11, 101-4
- 'unched-card indexing experiment at the library of the Atomic Energy Research Establishment, Harwell', 101-4
- 'ailex Filing Equipment, 268
- 'aine, A. H., 207, 210, 211
- 'anganathan, S. R., 46, 47, 58
- 'Why "Documentation"?' , 105-8
- 'avage, D., 58
- 'ates, R. D., 252
- 'eed, J. B., 1, 249-50
- 'Operational research on the author catalogue', 33-5
- 'eilly, Paul, 232
- 'enaddress addressing machine, 267
- 'review of Documentation, 43
- *Review of the results of the Royal Society Scientific Information Conference, 1948', 233-40
- 'ichens, R. H., 129
- 'ider, Fremont, 156
- 'oberts, F. B., 232
- 'om, G., 184
- 'oneo, Ltd., 267-8
- 'osenblum, A. A., 183
- 'otaprint, 128
- 'owlinson, H. E., 264
- 'oyal Aeronautical Society, 177
- 'oyal Geographical Society library, 218
- 'oyal Institute of International Affairs, 163
- 'oyal Society, 58, 91, 113, 114, 116, 233
- 1949
- , Abstracting Services Committee, 239, 249
- , Committee on Classification, 249
- , Copyright Declaration, 235
- , Empire Scientific Conference, 116, 245-6, 249
- , Information Services Committee, 234-8, 246, 253
- , Scientific Information Conference, 36, 37, 106, 109, 111, 116
- —, results of, 234-8, 246, 253
- Symbols Committee, 117
- Royal Society of Arts, 115, 119
- Royal Society of Edinburgh, 18, 177
- Russell, H. M., 1
- Ruthurstat, 128
- Saenger, E., 54, 180
- Safety in Mines Research Establishment library, 132-8
- Savord, Ruth, 183, 184
- Schafer, B., 67
- Schultze, R. S., 50, 160
- Science Library, 54, 125, 132, 134, 233, 236, 237, 242
- Scientific Library and Technical Information Committee, 233
- 'Searching classified patent specifications', 75-82
- 'Setting up a translations index', 36-8
- Sharr, F. A., 253
- Shaw, K., 66, 85, 160
- Shaw, Ralph R., 213, 224
- Sheffield Interchange Organization, 134, 140, 144, 214
- Sheffield University, 133, 134
- 'Shell Film Unit Stock Shot Library', 59-68
- Sheret, N. L. R., 264
- Shirley Institute, 16
- Simons, E. N., 1, 4, 176, 205, 262, 264
- 'What is an information officer?', 25-31
- Sinclair, Harry, Ltd., 268
- Smith, E. B., 111
- 'The Government library—with special reference to the library of the Safety in Mines Research Establishment', 132-8
- Smith, F. Seymour, 40
- Smith, J. F., 47, 170
- Smith, J. Roland, 111, 133
- 'The working of a public scientific and technical library', 139-45
- Smith, W. H., & Sons, Ltd., 266
- Society of Authors, 39
- Sondes Place Research Institute, 147
- Special Libraries Association, 36, 37, 122, 173, 183
- Spence, Margaret, 176
- Stapling machines, 268
- Stewart, James D., 54
- 'Stitching of Fulletins', 165-6
- 'Supply of foreign books and periodicals to the libraries of the United Kingdom', 3-4
- Synopses, preparation of, 109-110, 118, 235
- T.I.D.U. *see* Technical Information and Documents Unit
- Tallents, Sir Stephen, 183, 203, 211, 245
- Tattersfield, C. P., 1
- 'Use-development organization in the textile industry', 13-17.
- Technical Information and Documents Unit (T.I.D.U.), 237
- 'Technical Information Services', 147-51
- Tellarini, M., 49

- Tench, M. P., 207, 209
 Textile Institute, 16, 95
 —, Textile Terms and Definitions Committee, 95-100
 'Textile terms and definitions', 95-100
 Thirsk, J. W.,
 — 'The National Central Library', 41-2
 Thompson, Anthony, 175
 Thorne, R. G., 248, 253
 Tizard, Sir Henry, 20, 201
 Tonnon, J. C., 158
 Torrie, J. P., 57, 170
 'Touring and emergency services of the Automobile Association', 255-64
 Translations, 36-8, 130, 136, 141-2, 244
 Translators, 243-4
 Triggs, J. W., 183
 — 'Information services of the Festival of Britain', 225-32
 Turnbull, Anne, 265
 U.N.O., 46
Unanswered Questions, 234
 Unesco, 46, 48, 112, 153, 204, 247
 — International Conference on Science Abstracting, 109
 Ungerson, Bernard, 57
 U.S. Atomic Energy Commission, 215
 U.S. Library of Congress, 220-4
 U.S. Office of Naval Research, 158-9
 Universal Decimal Classification, 6-11, 43-9, 66, 101-3, 134, 136
 Urquhart, D. J., 1, 117, 170, 183, 205-6, 207, 208, 210, 211, 224, 249, 251
 — 'A review of the results of the Royal Society Scientific Information Conference', 233-40
 Uvarov, E. B., 1, 57, 82, 85-6
 — 'Some classification and indexing problems in an industrial information bureau', 5-12
 Vaughan, W. G. J., 39
 Verhoef, M., 183
 Verry, H. R., 111-12
 — 'Micro-opaques', 153-62
 Visual Communications, Ltd., 269
 Voorhoeve, W. A. J., 50
 Walford, A. J., 132
 Walker, Fred L., 129
 Weaver, Warren, 128
 Wells, A. J., 170, 247, 266
 Westminster Central Reference Library
 215, 219, 224
 'What is an information officer?', 25-31
 Whitrow, A. M., 175
 'Why "Documentation"?', 105-8
 Williams, G., 160
 Wilson, A. H., 111
 Wilson, Frank, & Co., 268
 Wilson, Leslie, 1, 4, 111, 161, 236, 237
 247, 251-2
 — 'Action taken by Aslib to implement the conference's proposals', 241-5
 Withers, J. C., 4, 58
 — 'Textile terms and definitions', 95-100
 Woledge, G., 46, 167
 Wolk, L. J. van der, 158
 Women's Voluntary Services, 230
 Wood, Sir Kingsley, 204
 Woods, R. C., 67
 'Working of an industrial library', 121-3
 'Working of a public scientific and technical library', 139-45
World list of scientific periodicals, 236
 Wright, R. C., 253-4
 Wuster, E., 47